

Overseas continued



The Higher Institute of Electronics

Beni Walid

Libyan Arab Republic

The Institute is mainly an undergraduate school and lectures are conducted in English. Students take a three-year course in Electronics and Communications Engineering leading to the B.Sc. degree. The Institute is situated in Beni Walid, which is about 170 km from Tripoli, and all students and members of staff are accommodated in the campus. Members of staff are strongly encouraged to undertake their own research.

Vacancies for staff members exist in the following fields:

- (1) Electronics
- (2) Communication Theory
- (3) Instrumentation and Control
- (4) Computation and Digital Computers
- (5) Engineering Drawing and Descriptive Geometry
- (6) Physics
- (7) Mathematics
- (8) English Language (preference will be given to candidates of English origin).

The minimum qualifications required for Technicians is a City and Guilds Technicians Diploma or any equivalent qualification (preference will be given to candidates with previous experience). Technicians are required to run the Institute laboratories in the above fields, plus the Mechanical and Electrical Workshops.

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SALARY GRADE (ANNUAL)

Position	From	To	Annual Increment	Total Increment
Professor	5,760LD	8,480LD	120LD	6
Associate Prof.	4,580	5,040	80	6
Assistant Prof.	4,180	4,582	87	6
Lecturer	3,510	4,158	108	6
Asst. Lecturer				
Lab Technician				

Lab Technician Salary dependent upon qualifications and experience.

(1 LD = £2.00)

In addition all members of staff will receive the following benefits:

- (1) The Institute pays tourist-class air tickets for the staff member, his wife and four of his children under 18 years of age. The paid tickets cover the journey between the place of recruitment to Tripoli.
- (2) The Institute pays 25 per cent of the air charge for excess baggage weight twice only—at the beginning and at the end of the service.
- (3) The Institute provides furnished accommodation.
- (4) Air tickets for leave are provided to staff members and their families, as well as for their dependents after two years of continuous work with the Institute.
- (5) For the first four years of service a gratuity of one month's salary is given to the staff member. A gratuity of two months' salary is given for each subsequent year of service.
- (6) The Institute provides full medical services for staff members and their families at Government Hospitals in Libya.

Qualified persons are invited to submit curriculum vitae to:

The Cultural Counsellor,  
Embassy of the Libyan Arab Republic,  
58 Prince's Gate, London, S.W.7.

Beloff accuses DES of bid to destroy Buckingham

by Peter Scott

The Department of Education and Science is working to destroy the University College at Buckingham, Professor Max Beloff, the college's principal, told a conference in Oxford last weekend.

He was speaking at a conference on the control of higher education, organized by the University Teachers' Group in conjunction with *The Times*. His theme was the "Independent alternative".

Professor Beloff said the Civil Service Commission had refused to allow holders of the licence awarded at Buckingham to take the Civil Service examinations for graduates. The Ministry of Defence had also refused to accept licence-holders as the equivalent of graduates for the purpose of receiving a commission.

Thirdly and most importantly, the Social Science Research Council had made it clear that universities which accepted Buckingham licence-holders on postgraduate courses in the social sciences could not expect them to receive SSRC studentships.

As a former professor of social administration, Professor Beloff said he had many contacts in government. He understood that other Government departments had been advised by the DES not to recognize Buckingham qualifications.

Mr Gerry Fowler, former Minister of State at the DES, denied at the conference that the DES wished to destroy Buckingham.

Later Mr Fowler said the DES had advised other departments requesting information about Buckingham that the college did not possess a Royal Charter and that its qualifications were not validated by the CNA.



Professor Max Beloff: contacts in government.

Mr Fowler defended the Government's decision to reduce teacher training, and also its policy of encouraging mergers between colleges and the larger polytechnics. He said it would have been quite wrong to leave a large number of small colleges teetering on the edge of viability.

Mr Roderick Kedward, lecturer in history at Sussex, who spoke on "Authority and Alternatives", suggested far more cultural expenditure to correct the malaise of underemployment which was a consequence of long-term under-education.

He argued that all status distinctions between higher and further education should be abolished and the binary policy dismantled. "Comprehensive, continuing education is long, long overdue", he added.

Administrative staff concern at prospects

Promotion prospects for administrative staff in universities are far worse than for academic staff, the Association of University Teachers' administrative staff representatives heard at their annual conference in Manchester recently.

A motion from East Anglia University noted that while administrative staff salary scales were closely related to teaching staff scales, the senior/junior ratio among administrative staff was far lower. Among teaching staff the proportion of senior posts was about 38 per cent, while among administrative staff it was barely above 20 per cent.

There was criticism of the way in which the Committee of Vice-Chancellors and Principals was said to have intervened in the AUT's attempt to get information from universities on the staff situation.

Mr Laurie Sapper, general secretary, said if the association could not obtain information on a voluntary basis, it would take advantage of its rights under the Employment Protection Act and apply for a declaration from the Central Arbitration Committee to the effect that it was justified in seeking the information.

Individual universities had been prepared to provide the AUT with a description of jobs being carried out in various grades of staff. But the CVI had intervened to prevent many universities from replying, he said.

The AUT executive was requested to continue its drive for machinery to create conditions of service for administrative staff on a national rather than a university basis.

THE KINGDOM OF SAUDI ARABIA  
University of Riyadh

Applications are invited for appointments to positions of Lecturers, Assistant Professors and above starting October, 1977, in the following specializations:

- Modern Novel and Earlier Periods = 1 Female Specialist.  
Poetry—Modern and Earlier Periods = 2 Specialists: 1 Male and 1 Female.
- Linguistics = 1 Female.  
Drama = 2 Specialists: 1 Male and 1 Female—(preferably) in Post-Renaissance Drama, excluding Modern Drama.
- At all levels, candidates must have Doctorate or MA qualifications in their respective fields and have experience as regular teaching staff in accredited Universities.

SALARIES AND ALLOWANCES  
(Saudi Riyals per month)

Position	Salary*	Annual Increment	Housing Allowance
Professor (PhD)	6,000-6,500*	200	20,000**
Associate Professor (PhD)	4,800-5,800*	200	17,000**
Assistant Professor (PhD)	3,800-4,800*	200	15,000**
Language Lecturers			
(a) MA (in Language Teaching + Lab. Experience)	3,000-5,250*	150	13,500**
(b) MA (Female) in Linguistics			

Benefits: Tax free, free medical service, annual passage-paid (80 days) leave.

Applications should be sent with curriculum vitae and testimonials to:

The Dean of the Faculty of Arts,  
PO Box 2456,  
University of Riyadh,  
Riyadh, Saudi Arabia.

\*plus 12% thereof as cost of living allowance.  
\*\*plus 50% of the Housing Allowance as Furniture Allowance paid only once and after taking up employment in Riyadh, or possibly, University housing: 50% of the Housing Allowance as Furniture Allowance paid only once and after taking up employment in Riyadh.

Saudi Arabia



A political Lear at the national student drama festival held in St Andrews last week. Roy Weskin plays the title role and Jim James is Edg in the Cambridge University Independent Theatre Group's entry. Full report: back page.

Four years late—adult council's quiet welcome

by Sue Reid

The Government's announcement that an advisory council is to be set up for adult and continuing education was given a qualified welcome by leading adult educationists this week.

The declaration of intent was made by Mrs Williams, Secretary of State for Education, in the House of Commons last week. It follows four years of heated debate about the merits of such a body, first proposed in the 1973 Russell report as a generously funded development council.

Letters outlining the Government's revised proposals for the council's composition and terms of reference are being sent to universities, colleges and other interested bodies by the Department of Education and Science. Final arrangements for the council's establishment will be made when their reactions are received.

The Government proposes that the council should consist of 20 members, including a chairman appointed by Mrs Williams. The membership will be drawn from the main interests in adult education, including local education authorities, the university sector, voluntary bodies, professional associations, broadcasting, and consumers such as the Trades Union Congress and the Confederation of British Industry. Adult students may also be represented.

The committee will advise on matters relevant to the provision of education for adults in England

and Wales and, in particular, promote cooperation between the various bodies in adult education and review current practice, organization and priorities with the aim of deploying present resources effectively.

The revised proposals suggest that the council should also assist in the development of adult education policies and priorities "with full regard to the concept of education as a process continuing throughout life".

A full-time secretary will be appointed by the council, and will be on the staff of the National Institute of Adult Education. Approved administrative expenses will be met by the DES within its direct grant to the Institute.

Mr Arthur Stock, director of the NIAE, said this week: "We welcome the announcement as a statement of intent. Now we are in a position to negotiate something further, and the proposals are a promising beginning."

The Universities Council for Adult Education has greeted the proposals with qualified enthusiasm. Professor Norman Jepson, Leeds University's director of adult education and extra-mural studies and secretary of the UCAE, said: "We have been concerned about provision for development, but we welcome the mention of this in the terms of reference. We also welcome the concept of a small co-ordinate council."

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Defeat brings hope to Scots colleges

by Judith Judd

Mr Bruce Millan, Secretary of State for Scotland, is expected to modify his proposals for teacher training in Scotland in the face of fierce criticism and last week's Commons' defeat.

As the Scottish Office has pointed out, the 18-vote defeat on the original motion to adjourn the bill need not necessarily mean substantial changes. But colleges feel hopeful that attacks on the proposals by both Conservative and Labour MPs will lead to a revision.

At a meeting with members of the Association of Lecturers in Colleges of Education in Scotland last week, Mr Millan said he had not made up his mind. He could spread the proposals unchanged, spread the diluted number of places between all 10 Scottish teacher training colleges, or do something in between.

As the number of places is unlikely to be increased, the second course would involve the creation of small units—a situation which the Government has tried to avoid in England. The third course seems the most probable.

The Labour Party in Scotland has already rejected the proposals, and next week lecturers will be asking the Scottish Trades Union Congress conference to do the same.

The proposals would mean the closure of Calder Park and Craigie colleges. Dunfermline and Craiglockhart colleges in Edinburgh would both face mergers. The aim is to bring down the number of teacher training places by about two-thirds, in line with the falling birth rate.

In the debate in the Commons, Mr Edward Taylor, Shadow Scottish Secretary, said no document had been so universally condemned, nor

had any Government proposals been put forward in so ham-fisted a manner. It was not in the interests of Scottish education that training should be concentrated in the big cities.

Three Labour MPs voted against the Government, and others are known to have misgivings about the plan.

Mr George Livingstone, secretary of the Association of Lecturers in Colleges of Education in Scotland, which has campaigned vigorously against the plan, said this week: "Whatever the result of the defeat we feel that the official rejection of the proposals must add some weight to our own educational arguments against them."

The association has asked for detailed costings of the proposals and for an inquiry into the working of the Scottish Education Department.

NATFHE sanctions plan to fight redundancies

The introduction of sanctions as a means to oppose compulsory and voluntary redundancies and excessive lecture sizes is to be called for at the annual conference of the National Association of Teachers in Further and Higher Education at Harrogate in June.

A motion, which will be given priority at the conference and has the support of four regional branches, also urges the use of sanctions in the NATFHE's fight against systematic overtime, loss of part-time teacher hours, and the curbing of in-service teacher training.

The conference will be asked to support a strengthened campaign against service cuts, and the union's executive will be urged to en-

courage and support appropriate action at branch and regional level. A motion calling for improvement in the teachers' superannuation scheme will also receive priority at the conference. Third in importance is a motion which seeks to postpone the introduction of further Technician and Business Education Council awards until administrative time allowances for the courses are agreed.

It also calls for the prevention of private study or correspondence routes to TEC and BEC qualifications and the abolition of registration fees in favour of fee charges on successful completion of a course.

More controversial is the demand within the same motion put forward by the NATFHE's southern branch, for an agreement that TEC and

BEC courses should be approved as desirable if the association provides by the association before their introduction.

A motion pledging the NATFHE to continue campaigning for equal opportunities for male and female students and an increase in educational provision for mature women also gets priority.

The association's national executive is also looking to the plight of the young unemployed. It criticizes the present level of resources and the ad hoc measures of assistance.

The development of a suitably funded Government programme of education training, work experience and job creation projects compatible with the individual social and economic needs of the young unemployed will be urged by the executive.

Great debate 'should look at Russian'

The deteriorating status of Russian studies should be examined in the national debate on education, four associations of Russian and Slavonic studies have urged.

In a letter to Mrs Williams, the Secretary of State for Education and Science, they say that the amount of Russian teaching in Britain does not reflect the status and importance of the Soviet Union. The four associations, which have recently joined together to form a joint consultative committee, are the Association of Teachers of Russian, the British Universities Association for Soviet and East-European Studies, and the Standing Conference of National and University Libraries: Slavonic and East-European Group.

Between them they represent all those in Britain concerned professionally with Russian, Slavonic, Soviet and East European studies at all levels.

Answering the letter, the Department of Education and Science said that while the Secretary of State was not seeking to control the school curriculum, some emphasis in the debate would be given to the place of modern languages, as there was evidence that language provision was less than satisfactory.

Professor Dennis Ward, of the department of Russian studies at Edinburgh University, and president of the British Universities Association of Slavists, said the number of school entrants for public examinations in modern languages, particularly Russian, had been steadily falling.

Action was needed, not only at local level but nationally, he said, if Russian studies in Britain were to be saved.

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Sue Reid reports from the Universities Council for Adult Education conference at Bristol



Dr. E. J. Tinsley

Venables development sought to meet universities' 'search for custom'

The Venables report on continuing education was greeted with some scepticism by the Universities Council for Adult Education at its annual conference at Bristol University last week.

Dorcas were voiced over the report's ambitious call for a gradual injection of funds into adult education to a level of £20m by 1984-85 and a second proposal that extra funding should be given to the Open University for the support of a continuing education division.

Need for bridge with community

Adult education and extra-mural departments can provide a vital bridge between universities and the community, Dr John Tinsley, the Bishop of Bristol, said last week.

At the annual conference of the Universities Council for Adult Education at Bristol University, he said that some academics remained unconvinced that continuing education was a suitable subject for universities, but he emphasized that in the present economic climate adult education and extra-mural departments could play a key part in restating the role of universities and their relationship with society.

Until the recent growth of continuing education, extra-mural departments were the only way universities could express their concern for the educationally underprivileged and adults in the community who wished to expand their knowledge. The development of continuing education in universities was important because of the contribution which could be made by mature students.

Universities, Dr Tinsley maintained, were able to foster a quality of teaching which other providers of adult education were unable to. They produced a body of research about adult education which was becoming increasingly important as various occupations extended work in the field.

Discussions about the report were started after Mr Norman Gover, senior lecturer in the Open University's Faculty of Mathematics and a member of the Venables Committee, told the conference that adult education provision should be increased in scale and scope.

He said that advice and information about continuing education was inadequate and course provision limited. He added that there was an under-use of existing facilities and a need for collaboration throughout the field.

Call for centralized control of policy-making

Mr Derrick Williams, the director of the newly established Gloucestershire Institute of Higher Education and former chief education officer of Avon, has called for policy making in adult education to be centralized.

Speaking at the annual conference of the Universities Council for Adult Education at Bristol University last week, he expressed his fears about the present tendency to decentralize decision-making in this field. Many argued that adult education should be controlled in the local community, but although local initiatives should be preserved central planning had to be achieved in the future.

"The most important thing is to put adult education into a wider context," he said. "I am acutely aware of the tendency of local education authorities for technical col-

leges, polytechnics and institutes of higher education to separate themselves from the other providers of adult education and go it alone."

Mr Williams criticized the current attitude of adult educationists: "He said: 'I find it depressing that no initial action can be taken without government support.'"

Commenting on the role of the new institutes of higher education, he said that in the future they would deal with further education as well as higher education. They would have local and national functions and add to provision for part-time students.

"The institutes of higher education are the only comprehensive tertiary institutions that the British education system has so far been able to develop," he said. They

possessed a reserve of expertise that could be used by adult education. Within a corporate strategy they should be seen as major providers of adult and continuing education.

Local education authorities needed to recognize this strength of expertise within the new institutes, Mr Williams said. It was important that universities did not regard them as somewhat sub-standard partners in the education exercise.

Mr Williams was last week appointed president of the Educational Centres Association. He succeeds Professor A. J. Allaway, professor emeritus, Leicester University.

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Britain aims at world's best training target

by Bert Lodge

The Government's commitment to devote 20 per cent of teacher training to in-service training was more ambitious than any other country had attempted, Mr J. C. Porter, principal of Bulmershe College of Education, Reading, told a conference of the Committee for Research into Teacher Education last week.

Speaking at Keele University, he said: "I am determined to get on to that 20 per cent and to do so in many ways as possible to that resource to the schools."

Mr Porter said that in-service training was the central focus of his work. He said that in-service training was not restricted by the academic content of the course. "All help the student to define and to resolve career problems by means of a course of undergraduate studies," he said.

The non-vocational course helped make the tension between action and academic study explicit. "The increased maturity of students after placement arises from the fact that they have terms of reference outside lecturers and textbooks."

Professor Smithers had failed to think through the relationship between academic study and work,

Dr Murray saw two ways in which institutes of higher education might develop. Of the liberal arts colleges, he said: "As our inner cities continue to decay, the struggle for survival becomes more desperate and as pressure on existing residences mounts, I would predict that a certain type of student will vote with his feet for the comparatively lavish, semi-pastoral ambience of the former colleges of education."

A large urban polytechnic could be distinctive to students who wanted a more intimate and emotional environment. Aesthetics and geography would play an important part in attracting students to colleges that had not suffered.

Turning to colleges of further education, Dr Murray said that these had great potential. Further education had suffered from deprivation for years. The mergers would help to secure better provision for this neglected sector.

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Judith Judd at the CRAC conference Sandwich courses have 'a bright future'

Non-vocational sandwich courses have a bright future, Mr Julian Ager told a Careers Research and Advisory Centre conference last week.

Mr Ager, of Middlesex Polytechnic's Higher Education Advisory Centre, attacked criticisms of sandwich courses made by Professor Alan Smithers, of Manchester University's Department of Education.

Mr Ager agreed with Professor Smithers that sandwich courses were not integrated and that they had not lived up to expectation. "The curriculum in the present economic circumstances was having to be created in their provision of in-service training: working in the school, taking part in school-focused programmes or acting as co-ordinators all being tried."

On these basis, he challenged Professor Smithers' argument that sandwich courses tended to narrow career alternatives. In the non-vocational course, there was a wide choice of final options, specialization was delayed, and the work experience was not restricted by the academic content of the course. "All help the student to define and to resolve career problems by means of a course of undergraduate studies," he said.

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Policy is 'Darwinian lunacy'

The Department of Education and Science's policy towards the new institutes of higher education amounts to "social Darwinian lunacy", Dr Robert Murray said last week.

Dr Murray, a lecturer at Cambridge College of Arts and Technology, who is the honorary assistant chief officer of the Council for National Academic Awards this summer, was speaking at a Careers Research and Advisory Centre conference at Bulmershe College, Reading.

He said the DES appeared to think that the law of the jungle should prevail among the institutes of higher education. "With the strong surviving and the weak going to the wall."

What many colleges under orders to diversify could and should be doing now would not in fact be done because of lack of resources. There was a danger of an unending struggle for survival and prestige which would divert attention from other areas of education which needed the money, such as the 16-19 year olds.

"What has worried many people has been the wholesale development of courses in the arts when there is already mounting evidence that student demand is declining."

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Social work aid welcomed

The Department of Health and Social Security's announcement that it is to finance an extra 300 grants to postgraduate social work trainees has been welcomed by social work teachers.

The Central Council for Education and Training in Social Work said that the decision would largely offset the expected shortfall of social work courses by local authorities. It considers that Mr Ennals, Secretary of State, was influenced by the strong representations made to him when he visited its headquarters in January.

But the council is still worried about the lack of money for non-graduate trainees. Mr Ennals has asked local authorities to do all they can to penalize students who depend on discretionary awards for social work training.

Sandwich course plan for lawyers

Sandwich courses have been advocated as a good way of training lawyers in evidence to the Royal Commission on Legal Services. The suggestion comes from the law department at Brunel University.

The submission recommends that law students spend part of their degree courses in a solicitor's office or the town clerk's department of a local authority. Sandwich courses and practical training not available in traditional law schools.

The Brunel law teachers said the qualification as a lawyer involved a mixture of university training and experience. They recommended a four-year law degree on the sandwich principle followed by a vocational training course.

Canadian studies officer appointed

The Canadian High Commission has appointed a full-time academic relations officer to coordinate the Canadian Studies programme throughout Britain.

The news was announced at the British Association for Canadian Studies held at Magdalen College, Oxford, from March 31 to April 1. The new officer, who will be based in London, will liaise with educationists and academics.

About 60 people attended the conference including British, Canadian and Indian academics, research students and representatives of the Canadian Higher Education Commission.

Speakers at the conference included Dr Frederick Jones of Dorset Institute of Higher Education, Professor Alan Williams of Birmingham University, Professor Alan Taylor of Queen's University, Ontario.

Research budget advisers

The Government has announced a new Staff will replace Sir Kenneth Barrill as Cabinet Office representative. Dr D. S. Davies succeeds Sir Iwan Tudor, chief scientist on the allocation of the science budget between the research councils.

Professor J. M. Ashworth, chief scientist to the Central Policy Research Staff, will replace Sir Kenneth Barrill as Cabinet Office representative. Dr D. S. Davies succeeds Sir Iwan Tudor, chief scientist on the allocation of the science budget between the research councils.

PNL occupation threatens to hamper admissions

by Sue Reid

A student occupation of the Polytechnic of North London's administration block, finance office and telephone exchange was this week threatening to hamper seriously the college's admissions process for the coming academic year.

The six-week occupation in protest over student fee increases and the Inner London Education Authority's overseas students' quota policy continued throughout the Easter weekend and has brought all administration work in the block to a halt. The distribution of student

grant cheques at the start of term next Monday may also be in jeopardy.

Attempts by the governors and Mr Terence Miller, the polytechnic's director, to halt the action before the Easter vacation all failed. The governors have since applied for a possession order but a court hearing is not expected before the end of this month.

A court of governors' meeting at the end of term ruled that a quota on overseas students would be harmful to the polytechnic and its educational services. It called for further negotiations with the IEA to ensure that the college could continue to recruit overseas students capable of benefiting from the courses offered.

The meeting voted to make strong representations to the authority and the Department of Education and Science about the hardship likely for self-financing students after the fee increases. It maintained that fees for these students, if already on courses, should be frozen at the present level.

A guarantee was also given that the polytechnic would set up a working party to alleviate financial hardship among self-supporting students if the representations at local and national level were unsuccessful.

But Mr Keith Shallock, vice-president of the PNL students' union, said this week that the governors had failed to put forward concrete proposals for opposing the fee increases and the quota policy. An occupiers' meeting was due to be staged at the college yesterday to decide future action.

The students maintain that recruitment is continuing normally for next autumn. But a polytechnic spokesman said: "The students' action is holding up the recruitment process. The governors and the academic board have been very sympathetic but this action is particularly self-defeating."

Barring the door: Keith Shallock, vice-president of the PNL students' union.

Barring the door: Keith Shallock, vice-president of the PNL students' union.

'Fashionable' structuralism and the French connexion

The difficulty of importing structuralism as a critical method into departments of English and French literature was the main theme at a recent conference on "Structuralism and Criticism" at Graggyon Hall, the University of Wales conference centre, near Newtown.

The conference on "Structuralism and Criticism", was organized by Dr Colin Evans, of the French department at University College, Cardiff. It was attended by lecturers from English and French departments throughout the country, and there were two French guest speakers.

British participants showed that they were well acquainted with the terms of current French intellectual debate. But the lack of any related British tradition made it difficult for there to be any British theoretical contribution to structuralism—which can be defined as a method of describing language as a system of signs.

One participant said that in Britain there seemed a tendency to regard structuralism as predominantly an arsenal of critical tools for practical textual application, and only a very limited desire to test the theoretical validity of methodological concepts.

Mr George Watson, fellow in English at St John's College, Cambridge, exemplified this tendency in claiming that to be interested in structuralism was to fall victim to the tyranny of the fashionable.

Structuralist or theoretical debate on the nature of literary studies was the nature of literary studies, and the childish and trivial nature of the only proper study of literature lay in the pursuit of the "truth of the human condition", he said.

Further, students of literature in English departments was Leavisite, which had few points of contact with structuralism—not even ones of omality. In French departments, structuralism had found a place as the critical companion of a literature which was by definition an import, but the isolation of modern languages departments meant that structuralism did not spread further.

Furthermore, students of literature in Britain rarely had any philosophical training, which was still a central part of the baccalaureat.

Another factor was the differing institutions in which literature was studied. French structuralism had not been developed in universities, but in peripheral institutes concerned primarily with research and publication.

The decentralized British university system, with its heavy commitment to undergraduate teaching, worked against a degree of intellectual sophistication comparable with France.

But Dr Terence Hawkes, of the French department at University College, Cardiff, suggested that a number of key concepts in structuralism had been originated or paralleled in countries other than France, and that there had been a significant Anglo-Saxon contribution to its development.

Other papers included the structuralist theory of humour, by Dr Michael Apter, psychology department, University College, Cardiff; and the work of Gaston Bachelard, and the Laboratory of Anthropology, the work of Gaston Bachelard, and the only proper study of literature lay in the pursuit of the "truth of the human condition", he said.

Graduates must spread word

The growth area for universities in the 1980s would be in continuing education, Professor Elynn Richards, former vice-chancellor of Loughborough University, told the conference of university convocations at their annual conference at Manchester University.

He emphasized that it was time for university convocations (associations of graduates) to make their voices heard in the arguments about national aims and priorities in higher education. This was echoed by several speakers from the floor.

Talking on the conference in the inter-relationship of universities and the community, Professor Alan Morton, of Manchester University, described a continuing, serious situation in which neither industry nor the academic world understood each other's problems. He urged an increase in such efforts as the Research Consultancy Services, and teaching awards and CAS (Co-operative Awards in Science and Engineering).

Speaking at the conference dinner, Dame Kathleen Ollerenshaw said that universities had not yet woken up to the fact that society was going to call the tune for its massive investment in education to an even greater extent than now.

The 70 delegates agreed that the benefits to the community of university work was both far-reaching and under-publicized, and that convocations, which had a foot in both camps, had an important role to play in the two-way process of involving universities and their communities. The only motion submitted to the meeting asked convocation groups to influence the spread of knowledge of the universities' real contribution to British life.

Is studying easier at home?

Accommodation and welfare officers should question the general belief that students can study better away from home, Mr Jack Corbett, assistant principal of Sheffield City Polytechnic, said last week at the annual conference of the Association of Accommodation and Welfare Officers at the College of Ripon and York St John.

The residential development in student services had been caused by the growing number of students living away from home.

"Are student services going to concentrate on better recording of accommodation address, better support services for the uncertain student changing his residence, or the sacred cow that rules that students should live away from home because it is 'a good thing'?" Mr Corbett asked.

Evidence had been published six years ago, which had not yet been tested, showing that residence had no positive effect on academic performance or social mixing. Nevertheless, every year there was an annual crisis when "accommodation officers are run off their feet, while bewildered youngsters arrive in strange parts of the country to live in conditions which are not conducive to study."

But Dr Hartley, who has carried out research in housing at Keele University, considers it important to continue the attempt to understand the principles which underlie good note-taking.

Dr Hartley proffered a number of guidelines for both teachers and learners to help in the taking of notes. He said there should be instruction in the skills of note-taking; students should be shown how to display their notes with diagrams as well as words. "The principles behind any lecture should be used to clarify at the beginning, using advance handouts and summaries. During the lecture questions asked by the teacher should be used as headings. Tidiness can be overcome either

Use TV to teach skills—Mr Prior

The Training Services Agency and the various schemes set up recently by the Manpower Services Commission could be abolished if the Conservatives came to power, Mr James Prior, the Opposition spokesman on employment, said recently.

He told a Young Conservatives' conference of the need to "get away from the multitudinous bodies, schemes and commissions" that confused the training field. Learning new skills ought to be more exciting than going on a Training Opportunities Scheme course.

There were better and cheaper ways to organize training, Mr Prior said. For example, the fourth television channel could be used to teach job skills in much the same way as the Americans have used television in training. He summed up Conservative Party policy as aiming to provide more jobs, better training and less bureaucracy.

New Birkbeck head

Professor Tony Chandler, a geographer from Manchester University, has been appointed to succeed Professor R. C. Cross as master of Birkbeck College, London. Professor Chandler taught at Birkbeck in the 1950s.

The funny way to grab a student's attention

by Tim Robinson

Teachers who want to keep their students' attention should put some jokes into their lectures; and there should be breaks in the lecture where students can write out their notes.

These were two of many suggestions put forward by a psychology lecturer, Mr James Hartley, who was speaking about the problems of note-taking at this year's British Psychological Society conference at Exeter University last week.

He dismissed much of the research done on note-taking as being too artificial because students usually knew they were taking part in an experiment, and the research ignored the problem of the lecturer's relevance to the note-taker.

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by using humour or by omitting key words in the handouts and then by getting the student to fill them in in the lecture.

Dr Hartley also suggested that listening to the lecture should be separated from the business of note-taking; copies of lecture scripts should be made available for students to work on when they wished.

For students, Dr Hartley thinks one method of ensuring an idea is remembered is to give it some personal meaning. Loose leaf notebooks are useful so additional notes can be added, and space should be left alongside notes and at the beginning and end of a notebook for annotations, comments and index.

COURSES

STUDY AT HOME for a London University External DEGREE

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Worley Hall is a member of the Association of Correspondence Colleges, the Association of University Distance Education, the Association of Professional, Career and G.C.E. Subjects.

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Endowment policy

The General Accident Fire and Life Assurance Co Ltd is to endow a senior lectureship in the department of general practice at Glasgow University. The benefaction follows the firm's endowment of a chair in the same department three years ago.

Need for bridge with community

Adult education and extra-mural departments can provide a vital bridge between universities and the community, Dr John Tinsley, the Bishop of Bristol, said last week.

At the annual conference of the Universities Council for Adult Education at Bristol University, he said that some academics remained unconvinced that continuing education was a suitable subject for universities, but he emphasized that in the present economic climate adult education and extra-mural departments could play a key part in restating the role of universities and their relationship with society.

Until the recent growth of continuing education, extra-mural departments were the only way universities could express their concern for the educationally underprivileged and adults in the community who wished to expand their knowledge. The development of continuing education in universities was important because of the contribution which could be made by mature students.

Universities, Dr Tinsley maintained, were able to foster a quality of teaching which other providers of adult education were unable to. They produced a body of research about adult education which was becoming increasingly important as various occupations extended work in the field.

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# Cutting the Oxbridge link

by Jane Feinmann

More men from public schools get places at Oxbridge because more apply, say the Oxford and Cambridge students' alternative prospectuses for next year. The prospectuses set out to dispel the myth that only males from public schools need apply.

"There are lots of theories, mostly exaggerated, about the Cambridge admissions policy," says the prospectus. "Supposedly anyone from a state school has less chance than anyone from a public or direct grant school, regardless of academic ability."

"In fact, what has been happening is that because public and direct grant schools put forward most candidates, they get to know how to work the system to their own advantage."

"Whatever people say about the CJE (Colleges Joint Examination) in the end it comes down to sophisticated question spotting and the more practice teachers have at that, the better prepared their candidates will be."

"The aim of the Oxford prospectus, similarly, is to encourage more people to come to Oxford, by adding an extra dimension to the view of Oxford University revealed in the official prospectus. For the fortunate this extra dimension is provided by teachers or links with people already here—the Oxbridge connection."

"We would like to encourage more women to apply and to challenge the assumption that it is exclusively a public school preserve."

Both prospectuses emphasize that women now have a better chance of getting places at Oxbridge than ever before. But they admit that once there the women will have to put up with living in relatively poorer colleges and a great deal of cycling at Oxford, and with "an entrenched assumption of male superiority and the right to rule—whether within a private relationship or the college bureaucracy" at Cambridge.

The Cambridge prospectus points out that because of "the famous sex ratio", most women will be sought after in excess, which some will enjoy and others will find "difficult to cope with if not overwhelming". Oxford suggests that "the severely scholarly approach of the women's colleges can force women to make an artificial distinction between their value as academics and their value as women."

The prospectuses also contain details of the universities, college by college, and are intended to complement the information contained in the official prospectuses. All the articles have been written by students and the cost of publication borne by the students' unions.

Four thousand copies of each have been distributed free to schools, particularly those which do not have a tradition of sending pupils to Oxbridge. Another 1,000 copies of each are available to the public.

Oxford University Students' Prospectus 1978/79, 90p, from Liam Smyth, Oxford University Students' Union, 42 Wellington Square, Oxford OX1 2JF.

Cambridge University: a prospectus by students 1977, 80p, from Gieve Corrhugh, Trinity College, Cambridge.

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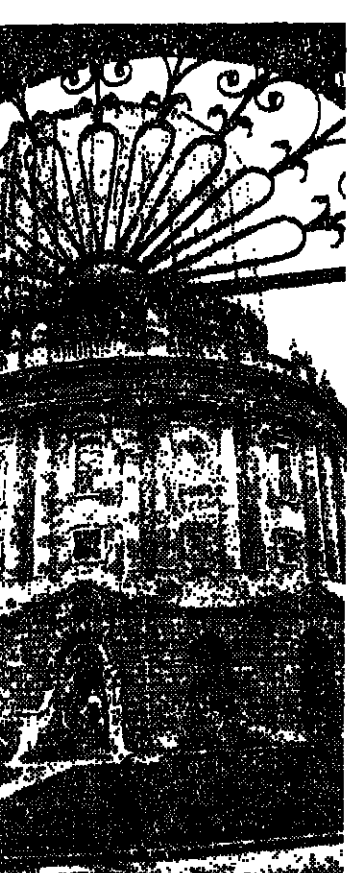
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One of the Oxford attractions—the Radcliffe Camera.

# Teacher training reorganization: London National and local priorities in conflict

by Judith Judd

London, like the north, has a declining population and has been hard hit in the proposals for the reorganization of teacher training. The Department of Education and the Local Education Authorities (LEAs) are in conflict over the future of teacher training in London.

As an ILEA official pointed out at a recent meeting to discuss colleges, Inner London has suffered less than the surrounding area. Both Stockwell College now part of the Inner London Education Authority (ILEA) and Thomas Huxley College, due to become part of the Failing Institute of Higher Education, are basing their campaigns to stay open on the gap in provision, especially for in-service training, which their closure would leave.

Another casualty in London is the North East London Polytechnic which has had its 20 places reduced to 100 for post graduate and post DipHE courses only. The polytechnic is concerned about the proposal because its lower and higher level courses are linked.

Bromley alone has a population comparable with the city of Birmingham and the college says its catchment area is similar to Birmingham and Liverpool together. Thomas Huxley has a letter written in 1975 by Mr Hugh Harding, an Under-Secretary of State recognizing its valuable work in four boroughs, Ealing, Brent, Harrow and Hillingdon. Stockwell, one of the oldest colleges in the country, will have an all-graduate intake this autumn, unlike some of the colleges which it is proposed should remain.

Against this the DES has set its determination to limit the number of institutes of higher education and to take into account Greater London's declining population. Thomas Huxley, despite its strengths in immigrant and inner city work—some of its pupils have won the teaching practice at the now-famous Faraday comprehensive school—is vulnerable because it has only 300 students, all of them mature.

It is a common feeling among the maintained colleges in Greater London that the voluntary colleges, which have received more than their fair share of places, Stockwell in the case it is presenting to the DES, says that the share of the Anglican colleges in Greater London and the south-east is 10 per cent more than the Church of England's share. Thomas Huxley says that there will be no maintained college in the whole of the west and north-west of London, if the proposals remain unchanged. If the proposals are changed because the churches have a say in the colleges they wish to remain.

One church college whose survival will be welcomed by many is All Saints, Tottenham. The college was repressed by the Secretary of State in the last round of DES negotiations but its closure was imminent in November. It has a minority of entrants with two A levels but has made an important contribution to teaching in multi-racial schools. The college is now discussing a merger with Middlesex Polytechnic with the blessing of the DES, though the problem of merging the two institutions has still to be overcome.

If these proposals are implemented teacher training places in Greater London in 1981 will be:

Goldsmiths College	1,000
ILEA	2,000
Avery Hill	
Polytechnic of North London	
Polytechnic of the South Bank	
Thames Polytechnic	
Shoreditch	
Kingston Polytechnic	400
Middlesex Polytechnic (including All Saints)	750
North East London Polytechnic	100
Roehampton Institute of Higher Education	1,200
St Mary's College, Twickenham	700
Kingston Polytechnic	400
West London Institute of Higher Education	900

# Don's diary

## OU in the US

We arrived in Washington DC at the beginning of September, having survived the "hottest summer on record" in Europe; and I am writing this at what we hope is the end of the "coldest winter on record" in the United States. We have lived through a period in which the phone reached a record low. Even a short Christmas ended with that state experiencing its first recorded snowfall.

This diary account of my second tour of duty as academic director of the Open University's North American Office is strictly of the "deep background" as Dr Kissinger used to say.

The official record is in my telexes, memos and bulky monthly reports, which probably fill several cardboard boxes in the vice-chancellor's office at Milton Keynes.

My first tour of duty was in 1974, shortly after the North American office was established to share information and develop collaboration with American educational institutions. At that time, the office was on the 21st floor of a new building in New York, overlooking Central Park, and I could walk through the park to the office each morning. In December of that year, I rented a U-Haul truck from what seemed like an armed camp in Brooklyn (barbed wire, guard dogs and pistols in evidence) and moved the office to Washington.

The present office is located in the centre of the district around Dupont Circle, which contains most of the national offices of educational associations and for education agencies. The Open University is now an accepted part of that educational establishment.

Like most of the people who work here, we live out in the suburb of Chevy Chase. As in New York, it is surrounded by tourists for whom English is a second language; but whereas in New York they would be recent immigrants, in Chevy Chase they are more likely to be affluent diplomatic families.

My five year old daughter, Claire, was afflicted with teaching practice at the school bus stop on her first morning. The child-minders who sit for some evenings are French and speak hardly any English. Our corner shop is the French Market.

## C'est la vie

I discover the "real" America again when I visit some of the universities that have set up Open University courses. But even then, one has to realize that there is not one America but several, and that the reality is more varied than foreigners are led to believe.

A visit to Houston University, Texas, which has an OU programme, taught me that Texans are much more sophisticated than one is led to expect. Perhaps it was because they were having a French Week in Houston, and two of the attractive female academics who administered the OU programme there are French specialists (although the OU programme does not teach French language and literature), but I came away feeling as if I had been in Paris for a couple of days. Impressions were even more confused by the fact that Houston OU provides a princess in Saudi Arabia as a resident of Manger Square, Bahleem.

Back home in Washington there is a string of déjà vu as I watch university programmes on local television, translated for students by the Open University courses at the University of Maryland. For those Maryland Open University students serving in the armed forces in the Azores, out of reach of Washington television, films and tapes are flown in. USA transport planes are Open University films with their own officer selection, which are part of the People and Organizations

course I helped produce. It is nice to know that one's teaching is having such a far-flung impact, but I just hope it does not undermine confidence among our allies.

In spite of the Washington location of our office, there are still opportunities to visit New York. WNET/Channel 13, the public broadcasting station in New York, has a grant to explore the feasibility of teaching undergraduate courses with a significant television component, in conjunction with several New York universities and colleges. They are very impressed with the Open University courses which they regard as far superior to anything produced in the United States, and they are eager to learn about our teaching methods. Consequently, I have been up for meetings with WNET staff and academics from the participating colleges.

## Blind date?

At the first meeting, I arrived in myopic state having lost a contact lens (supplied by the NHS after a cataract operation). I was relieved to find that the person chairing the meeting, the assistant to the president of WNET, was also having trouble with contact lenses. Since then we have continued to see eye to eye. I only hope it does not turn out to be a case of the blind leading the blind.

Recently, there have been trips to Boston, which was my favourite American City when I taught at Smith College in the late 1960s. I represent OU expertise on the planning team of a project, PROCEED (Program for Continuing Engineering Education), funded with several million dollars by the National Science Foundation and based at Massachusetts Institute of Technology. Its assignment is to develop a national programme of continuing education for engineers in America.

The programme is to be based upon the modular system and will explore innovative techniques for delivery. It involves the collaboration of industry, professional societies, universities and government. It is of particular interest to the OU because the first self-study modules deal with energy conservation—a strong research topic at the OU. It could also have wider implications for collaboration with the OU and subsequent adoption in Britain.

When the time comes to return home at the end of April, we will find ourselves torn in allegiance. I have been visiting America at regular intervals since I finished at Oxford in 1967, and each time I find it more difficult to make general comparisons between Britain and America, even though such comparison is my favourite topic in sociology.

I remain fascinated by the similarities and differences in the respective national symbols and institutions. What will there be to compare with the Carter family walking from the Capitol to the White House in the Inauguration Parade? If the Queen does not promise to mark her Silver Jubilee by walking from Westminster to Buckingham Palace, I do not know how I will persuade my daughter to return. What sociologist can calculate the effect on her of eight months of swearing allegiance to the Republic each morning?

## Reactionary slur

In Washington, we are also involved in a number of interesting consultations. The Inter-American Development Bank is funding feasibility studies of the prospects for developing open universities in Latin America, and we are constantly called in for consultation.

At one high-level seminar held recently at IADB, attended by representatives of education ministries of several countries, I engaged in a microphone-to-microphone duel with an American participant who tried to argue that setting up open universities in

Latin America was a capitalist ruse to deny the peasants in open universities where they could try to be revolutionaries. (I apologise for this crude phrase of an elegant thesis.) Fortunately, I was able to point out that he had spoiled his argument by making sweeping references to the Open University being primarily for "housewives" (a reactionary slur) and by suggesting that open universities would deprive the peasants of their right to a full Oxbridge education (a Utopian dream). The Latin American delegates seemed to enjoy the exchange and a member of the British Embassy staff informed me the next day that my remarks had been much appreciated at the bank. I wish I could make the same impression on the manager of my Barclays branch back home.

## Royal walk

Another regular event in Washington is the dialogue on lifelong learning held in the Congressional offices, in which I am invited to participate. The meetings are attended by aides to senators and congressmen, representatives of educational agencies and associations, and other groups interested in discussing ways of implementing the provisions on lifelong learning, which formed part of the Education Act passed in 1976.

The suggested annual budget for these provisions is \$40 million, and so there are a great many interested parties lobbying for such lobbying is less open, these monthly meetings would appear incongruous. In Washington, they are welcomed and encouraged.

At its worst the meeting can seem like a scene from *Jaws*, with sharks circling round the bait. On the positive side, they reflect the openness of change and innovation and the consumer-oriented character of American education.

It is not surprising, therefore, that Americans are interested in learning more about the British Open University and take account of it in their thinking about the development of continuing education. For our part, do what we can to answer their questions; and to this end, I am organizing a large OU exhibition and conference at the British Embassy in April.

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The young graduates mother, all too often, becomes one of society's waste products. She is taken out of circulation, imprisoned within four walls, to be subjected for years to the incessant prattle of small children; or to the passivity of an aging parent. Knowledge, memory, power to reason and to concentrate—all suffer. An adult education centre, where a creative life is offered, can be a powerful corrective. Here is some evidence of deprivation:

"I had ten years of stagnation... I became bored, depressed, resentful... reading and thought were a painful effort... scanning the daily paper was a one-way process; could neither question nor argue... my thoughts and reactions were becoming entirely predictable... suddenly, my children were little intellectuals, and had left me behind..."

And here were the remedies:

"The psychological effect of a discussion group has been astounding... my family has benefited by my newly-acquired 'wisdom'... If I am ever to return to teaching, the class will have been a stepping-stone... (and, rather surprisingly, my absence from the children has increased affection all round."

Keneth A. Thompson

The author is senior lecturer in sociology at the Open University, and currently director of the Open University North American Office.



New York: opportunities to visit.

# Why adult education is a vital lifeline

Older people would appear to benefit even more. One of our tragedies is that so few people, on leaving school, want anything more to do with education. Another is that so few retired people, having left school early, are equipped to return to it in Bernard Shaw's words, they are already dead. They could hardly begin again at 65, unless special courses were invented for them, and in some cases, brought to their doorstep. Here is another powerful lifeline.

Before and after—here are some personal replies:

"I had found retirement the great illusion. I was now a back number... I was lonely on retiring to a new town... I had become petrified; inarticulate, monosyllabic, a total loss to my family..."

"Classes had improved the quality of life... the course unravelled very, steady and discussion turned me up physically... life had point and purpose if I had to be somewhere at 10 am... A welcome change from the snippery (sic) of an ever-widening circle... I roved in a mixed age-group... I've discarded many of my clichés, and especially my prejudices about class and race."

These comments stress the benefits of adult education: mental and physical well-being, as well as social contact. They show it to be the concern, as much of a Ministry of Health as of Education. Indeed, we have much to learn about the interrelation of study and bodily welfare.

This is not to say that adult education should be provided free. "see red" when they hear of flower arrangement, upholstery, and bridge classes being paid for from rates and taxes; and no doubt they feel the same about modern religion and Renaissance music. Many users of adult education, particularly those whose fees are subsidised, would voluntarily pay a higher fee, if a system could be worked out.

Cautious critics have said that young mothers, in particular, they cry for escape from the children, are being "brain-washed". For anyone of reasonable intelligence, they add, marriage is not necessarily an early death; husbands are learning to be cooperative, labour-saving devices abound; housewives should organize for mutual aid, etc. Such critics are often older women. They themselves once made a virtue of necessity, and consider that the present generation should do the same.

The lifeline should be extended. Adult education of the sort I have described is largely a middle-class activity. Some daytime courses are organized for workers, but usually of a strictly professional nature. Could a modern group of workers study literature or painting, or are their interests limited to a history of trade unionism? Is the culture gap bridgeable? Some adult education stems from the Workers' Educational Association, but this is a misnomer, a bit of semantic juggling, defended only by the reply: "we are all workers now."

Before we have made to mix the classes in one classroom, but usually in vain. They took our look at us, "a woman organizer, bold me," "don't waste my time, concentrate on your work." The first impact of a real working class accent on our group, said another, "would provide a severe cultural shock."

Yet, with patience, how much might we not learn from each other? With increasing leisure, adult education has a vast civilizing role to play. Another member of our group, a young mother, has been seemingly never heard of in the school-leaver's group. She has been made with schools. Starring a two-way process, the extra-mural lecturer would be a splendid aid to general studies. Much must be done to help the unemployed. However, measure our resources, we cannot stand still.

I. C. Thimann

The author is a tutor in the Adult Education Department at Notting-ham University.

# Numeracy key to productivity boom in 1980s—Tolley

Management training must re-emphasize numeracy skills to prepare for the resurgence of productivity in British industry in the 1980s, the Rev Dr George Tolley, principal of Sheffield City Polytechnic, said last week.

Dr Tolley, addressing the Teesside Polytechnic diploma of management studies conference in Scarborough, said that more and more graduates in the social sciences were finding their way into management.

"Many are not merely non-numerate, they are proud of it. Many management departments in polytechnic and universities have invested heavily in expertise in the behavioural sciences and this investment has had some beneficial effects. But that expertise is likely to have to be deployed in a more stringent context of productivity and performance," he said.

Dr Tolley discussed management development for 1984, a year of post-Bullcock, post-depopulation, post-Norci Sea oil euphoria, when the productivity, growth and economic indicator curves will either be post-catastrophic or will have shown

# Plaid Cymru urge all-in new university

A complete revision of higher education in Wales was proposed last week by Plaid Cymru, the Welsh Nationalist Party. They want to establish a new university of Wales in which the present university, the polytechnic, the new institutes and colleges of higher education and the remaining independent colleges would all be constituent colleges.

The proposal is contained in the party's education policy document which was discussed at an internal meeting at the Albert Hall last Saturday. Councillor Ilyw Roberts, Plaid Cymru's spokesman on education, said the policy document was seeking to do away with the divisive binary system which creates an imbalance of resources between the university and non-university sectors.

"I believe strongly that we must do away with this division and produce a new approach to higher education in Wales," he said.

The document points out that while the present University of Wales has expanded well beyond the needs of Wales itself, technical and business education in Wales is still not fully meeting the country's needs. It says that one body—a higher education commission—ought to represent demands well beyond with all aspects of higher education.

The commission would strengthen the federal structure of the new university and avoid wasteful duplication of resources among a number of small departments in various colleges.

Plaid Cymru is planning to hold a further education conference in July.

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# Zoological Society expands its research

Last year saw the consolidation of the Institute of Zoology as a focus of research, according to the annual report of the Zoological Society of London.

The Institute, formed from the Natural Institute of Comparative Medicine, the Wellcome Institute of Comparative Physiology, the zoo's animal hospital and the pathology laboratory, was a source of scientific expertise in reproductive physiology, biochemistry, immunology, parasitology, cytology and genetics. Spending increased last year by 12 per cent to £2.2m.

New lion-terraces were opened in June by the Queen. The Zoological Society of London annual report 1976 (no price).







# NOTICE BOARD

## Chairs

Dr J. K. Davies, fellow and tutor in ancient history at Oriel College, Oxford, has been appointed to the Rathbone chair of ancient history and classical archaeology at Liverpool University from October 1, 1977. He will succeed Professor E. W. Walbank, who is to retire.

Dr A. French, lecturer in accounting at the London School of Economics, has been appointed professor of accounting and financial control at University College Cardiff from October, 1977, and will succeed Professor C. C. Magee, who is to retire.

## Honorary degrees

Usher D.Lit.: Professor W. H. G. Arny-Luce, for his contribution to education and

Dr M. Brunka, at present a senior lecturer at the University College of Swansea, has been appointed to the chair of geology at University College, Cardiff.

Dr W. T. Dean, at present Research Scientist at the Eastern Paleontology Section, Geological Survey of Canada, Ottawa, has been appointed to the second chair of geology at University College, Cardiff.

Dr John Henry Blaney, consultant physician to the United Birmingham Hospitals, member of the external scientific staff of the Medical Research Council and honorary reader in Birmingham University's department of experimental pathology, has been awarded the honorary title of professor of renal medicine by Birmingham University.

Chairman of the Academic Advisory Committee: Professor H. C. Darby, for his contribution to scholarship in geography; Miss Greer Garsim, for her contribution to the arts; The Lord Kilfinchy, for his contribution in the field of international sport.

## Appointments

**Universities**  
**Cardiff**  
 Lecturers: Dr M. Greenhough (physics and music); Dr B. R. A. Counsel (anatomy); Staff tutor: Mr P. J. Riden (local history); Dr J. M. P. Jones (department of extra-curricular activities); Research fellow: Dr J. J. C. Scott (mathematics).

**Essex**  
 Lecturers: Dr S. Botros (philosophy); Dr J. Sanders (government); Fellows: O. K. Joshi (physics); J. Booth (sociology); Dr J. C. Scott (mathematics).

**Oxford**  
 Visiting research fellowships at Merton: W. H. H. Shawcross (for Michaelmas Term 1977); Dr Vasos Karageorghis (for Hilary term 1979).

**Reading**  
 Reader: Dr D. A. Allport (psychology).

## Salford

Promotions to senior lecturer: F. Neal (business and administration); Dr J. B. Stepanek (chemical engineering); Dr B. J. Wakefield (chemistry and applied chemistry); Dr J. E. Randall (civil engineering); Dr M. S. Zoladzowski (electrical engineering); Dr M. A. Cohen and Dr M. P. King (modern languages); Dr M. R. Parker (pure and applied physics); Lecturers: Dr J. H. Brackbury (biology); Mrs C. A. Roberts (business and administration); Dr W. T. Cuffey (electrical engineering); V. Duke and G. W. H. Smith (sociological and political studies); Assistant Director, Computing Laboratory: Mr H. D. Ellison.

## Polytechnics

**South Bank**  
 Head, School of Management and Administrative Studies: B. Walters. Promotions to principal lecturer: M.

## General

**The St. Helens School of Management**  
 Appointed Head of the school, Dr Robert G. Murray, currently principal lecturer in history at the bridgeway College of Arts and Social Science, has been appointed as principal lecturer in history at the school. He will take up his appointment on September 1, 1977.

**Social Science Research Council**  
 James Dunnet, chairman of the Council, has been elected to the post of Vice-Chairman, and Dr W. T. Cuffey (electrical engineering) has been elected to the post of Secretary. The Council will meet on September 1, 1977.

**Council for National Academic Awards**  
 Dr Robert G. Murray, currently principal lecturer in history at the bridgeway College of Arts and Social Science, has been appointed as principal lecturer in history at the school. He will take up his appointment on September 1, 1977.

# LETTERS TO THE EDITOR

## Consultancy services

We read with interest your article on Innovation and Production (THES, March 18) and would like to inform your readers that at least two other industrial liaison centres in the country are alive and well.

The ex-Enfield and Hendon College Industrial Liaison Centres (now part of Middlesex Polytechnic) have amalgamated and developed into the Middlesex Polytechnic Consultancy Services Organisation, and form a part of a wider group of links with industry, commerce and the public services through activities such as placement and graduate appointments work.

Unlike the Sheffield centre, the consultancy services organization is able to operate with a minimum of centralization. It is a member of the system of delegation which encourages groups of staff in different fields to operate independently, maintain and develop contacts and share in any income deriving from consultancy projects. All consultancy work is done through the deans, and much of it derives initially from contacts developed by the liaison services mentioned above.

Like Sheffield, the polytechnic's experience is that the growth market is with small businesses which cannot afford their own staff or equipment to perform one-off or specialized consultancy tasks.

We do not agree with Sheffield that the services we offer should be subsidized; on the one hand this could lead to unfair competition with commercial consultancy organizations; on the other hand small firms, perhaps more than large, are quick to appreciate and calculate the financial gains from consultancy properly paid for. Our consultancy services extend over the entire range of polytechnic academic work which covers not only the traditional engineering and business management fields but such diverse spheres as education, art, design, languages, hotel and catering and social sciences.

Consequently projects are often undertaken for local authorities and government departments as well as industry. Clients benefit from the full range of polytechnic facilities and expertise, and staff and students benefit from the external contacts and experience gained.

We are confident that a much larger market for our services exists and are looking forward to a period of steady expansion in the near future.

Yours faithfully,  
 R. WEATHERLEY,  
 P. WARNER,  
 Project Managers,  
 Consultancy Services Organization,  
 Middlesex Polytechnic,  
 Bounits Green Road, London, N11.

## Punch below the belt?

Sir—The author of your *Other Hand Column* (THES, March 25) seems to have studied Greek for the old School Certificate, then to have gone over to the modern side at school, and in a period, when such a progression was normal.

That period must have been fairly remote, since he claims to have forgotten such Greek as he was taught; nor can he have been taught very efficiently, since he did not learn anything about the function of the chorus on the Greek stage, nor was he sufficiently interested even when a nostalgic whim drove him to see the King's College performance of an Attic comedy, to buy a programme and discover what the play was about.

Nor did his teachers ever take the trouble to teach him Greek, or to say anything about the performance elsewhere; otherwise he would have discovered that it is not unusual for the audience to follow the performance in the text, and that it is not a gross solemnity to laugh during the performance of a comedy.

It is a pity that he was not better taught, by a more inspiring teacher, since he was evidently quick-witted enough to adopt a theme, and to imitate a style, more popular some 50 years ago by Stephen Leacock; and his memory, even if it has not retained any of the Greek he was taught, is evidently retentive enough to reproduce a type of humour that was current in Punch in the 1920s.

Should he maintain that *Punch* in the 1920s was, for all its imperfections, vastly more amusing than it is today, I would be inclined to agree with him.

An article written by an old-fashioned Philistine (or perhaps by a don showing an appropriate Socratic irony in posing as such?) will well provide light relief in a period when the general curbsack in teacher training in spite of College Letter 1/76 which called for special consideration for French.

Finally, as Ms Felmann almost stated, the situation in UDEs in contrast seems remarkably stable ("confidence and stability" was the phrase) and therefore the proportion of potential modern language teachers (almost all of whom are French) from former colleges, will have dropped by about one third in comparison with 1975, and by 1981 by two thirds. These reductions reflect the general curbsack in teacher training in spite of College Letter 1/76 which called for special consideration for French.

Perhaps your contributor may remember some of his school French; he may know enough of the subject to be rather less bewildered by stage conventions observed in a slightly different kind of non-realistic drama. Or perhaps he could produce some equally witty comments on some modern comic programme on stage or television? Critics who have remembered more of their Greek than your correspondent have found that modern comedians, from Tommy Handley onwards, have shown surprising resemblance to heroes and anti-heroes of Aristophanes.

Yours faithfully,  
 J. E. G. WHITE,  
 Wolverhampton Polytechnic  
 Wolverhampton.



Professor Dalrendorf — strong words.

## Modern language courses

Sir—While Jane Felmann's report of my introductory paper to the recent specialist conference at CILT (THES, April 1) clearly brought out some of what I was trying to say, compression and a few inaccuracies might have combined to give the reader a somewhat false picture.

Certainly, I believe the provision of teachers of modern languages will have been gravely reduced by the early 1980s unless action is taken soon. However, in trying to establish the facts of the situation—post-college reorganization—then projecting the trends through into the early 1980s, I was attempting to highlight the implications (e.g. for core curricula, teaching across the ability range) rather than providing protection for a particular sector.

My paper was based on data contained in questionnaires returned by 72 per cent of (former) colleges and 90 per cent of UDEs. Forecasts of potential teacher output in 1979 ("potential" because not all the new teachers will teach/teach their language) were calculated from actual admissions in 1976 and may be considered reasonably accurate. Ms Felmann might have pointed out, however, as I did most carefully, that those for 1980 contained a degree of subjective interpretation.

However, leaving aside inaccuracies in the speculation, it still seems that by 1979 (not 1976—a confusion of admissions with output?) the output of potential modern language teachers (almost all of whom are French) from former colleges, will have dropped by about one third in comparison with 1975, and by 1981 by two thirds. These reductions reflect the general curbsack in teacher training in spite of College Letter 1/76 which called for special consideration for French.

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Yours faithfully,  
 J. E. G. WHITE,  
 Wolverhampton Polytechnic  
 Wolverhampton.

## Academic awakening

Sir—Professor Dalrendorf may know of good reasons to justify his use of such strong words as "irresponsible", "cynicism" and "sheep" to describe the way in which the fees issue has been handled (THES, March 11). I doubt however whether he can absolve himself entirely from responsibility for the situation which he and an increasing number of his fellow principals and vice-chancellors seem now ready to condemn.

Could it not be that much of the malaise that permeates the entire higher educational sector arises from the failure of academics, especially august bodies such as the Committee of Vice-Chancellors and Principals and the University Grants Committee, to take the trouble to define the role of higher education in society and to submit their findings to public debate?

In times of abundance we have indulged in profligate spending, and when the going is rough, as now, the response is predominantly emotional. At no stage has higher education been subjected to detailed studies by its leaders, which could provide a fundamental basis for rational planning by universities and government working towards a common goal.

Since university authorities have made such inefficient use of the ad hoc response, we cannot really be surprised that the students are now adopting a similarly misguided approach. Perhaps the present ruinous state of universities in terms of public respect, of staff morale and of student idealism, was a prerequisite to formulate a more constructive response; but if as Principal Dalrendorf seems to imply it is all someone else's fault, a great opportunity is again likely to be missed.

Yours faithfully,  
 WATKIN WILLIAMS,  
 Department of Agricultural Botany,  
 University of Reading.

## Testing of entrants

Sir—The report (THES, April 1) on my comments' regarding the project was misleading in that it conveyed the erroneous impression that the prime purpose of the tests was to investigate the reliability of school examination gradings. In fact the first aim of the project was to release data on our recent press release stated quite explicitly that the tests had been devised "for testing entrant students' knowledge of the fundamental skills required for successful study of the following subjects at university: mathematics, physics, chemistry, French and German and that the main objective was "to obtain data which can be discussed with the schools, the SCE Examinations Board and other interested parties, with a view to remedying, either at school or at university, any major deficiencies in knowledge which the tests bring out, and so ease the transition of secondary pupils from school to university".

A. D. MACKINTOSH,  
 Scottish Universities' Council on Entrance.

## Just the job

Sir—Richard Hoggart asks (THES, March 25): "Why, in the 1960s, did no one insist on establishing an inter-city day-student university" with "much that is distinctive to offer to students, and to the neighbouring community?" They did. They are called polytechnics.

Yours faithfully,  
 R. A. BARNETT,  
 Administrative Assistant (Admissions),  
 Polytechnic of North London,  
 Holloway Road, London N7.

## Discretionary grants

Sir—It may not have been quite clear to your readers, from your necessarily brief outline of a point I made to a recent London conference ("Students forced into longer courses", THES, March 11) why current problems over discretionary grants are having the laughable effect I referred to.

Since the addition of HND and DfEE courses to the "mandatory grant" list of designated courses, there are relatively few advanced courses for which an i.e.a. grant would remain discretionary. Most of these are vocational diploma courses, among them secretarial, linguistic courses. A number of such courses have entry qualifications equal to those of degree courses, and are recognized by DfES as advanced courses (e.g. for Bournemouth work grading and for Advancing EB purposes). They are in fact by every standard, and often by the most advanced, more advanced than many HND courses, and it is difficult to find any justification for treating them in a less favourable way.

The problem, which has existed for a long time (I first came across it some five years ago) is becoming more common because of the economic climate. A number of employers are refusing to give discretionary awards (because their budgets are fully committed by their mandatory awards) or are giving lower grants to discretionary courses. This has the effect of making it difficult for students (they are mainly girls) who wish to become secretarial or vocational entrants to a two-year diploma course, or a four-year languages degree followed by six months of secretarial training. A large number of students prefer the first route because they start earning sooner. A student is accepted on the course and applies for a discretionary award. The i.e.a. office asks to how she should proceed. An appeal is made on her behalf, but to no avail. The only way she can then be given to the second route—a secretarial training sub-degree (or simultaneously by attending evening classes). The student is then obliged to give a grant for the full four years of the degree course.

The result is that the public have to pay twice as much as it would be to have the student in a career by two years at least; and is deprived of one or two years (and if he can judge the high salaries offered to trained secretarial-linguists, this is a loss); and the advanced vocational and some other colleges become more difficult to obtain grants to fund.

## Preaching and practice

Sir—As someone who is leaving the Open University to become principal of Worcester College of Higher Education later this year, I am glad to read that the Secretary of State hopes to see the area of part-time public sector higher education expanding over the next few years. If this hope is not to remain at the level of piety, it will need to be matched with changed policies by her department.

Among many things needful is to establish the principle that where students are studying for the same qualification they become equally eligible for grant awards according to their needs. The present situation, where Mrs Williams' department mandatorily meets 90 per cent of the costs of awards to students taking the more expensive full-time routes and offers no direct earmarked support to students taking the part-time routes, is hardly designed to make the part-time routes attractive.

Mrs Williams would be a more persuasive gossiper if she were to insist that her department practise what she preaches. To chastise the polytechnics for the disappointing level of expansion in part-time education is to blame them for the motives in their vision, whilst ignoring the beams in Elizabeth House.

It looks as if a *mea culpa* from the Secretary of State would not be out of place. I hope that in all conscience she will make atonement in less than the 15 to 20 years lead time that she sees as a characteristic of her department.

Yours sincerely,  
 WALTER JAMES,  
 Dean of Educational Studies,  
 Open University.

## Open University programmes April 16 to April 22

<b>Saturday April 16</b>	6.45 Mathematics: A foundation course: Algebra 1 (A101) prog 9; 7.10 The film 'The Picture' (A101); 7.35 Science: A foundation course: Elementary Material (A101) prog. 9; 8.05 Making sense of statistics: Abrogation (A101) prog 9; 8.30 Technology: Foundations course: Technology: Water for Oxford (A101) prog 9; 8.55 Water for Oxford (A101) prog 9; 9.20 Maths in pure mathematics: Finite sets (A101) prog 9; 9.45 Introduction to engineering mechanics: Foundations (A101) prog 9; 10.10 Systems management: British Rail (A101) prog 9; 10.35 Integration and normal spaces: York in a function (A101) prog 9; 11.00 (A101) prog 9; 11.25 Maths and information: Evolving systems (A101) prog 9; 11.50 An introduction to the history of physics: Carbon-Dioxide Double Bonds (A101) prog 9; 12.10 The non-linear person in the community: A case study (A101) prog 9; 12.45 (A101) prog 9; 13.08 (A101) prog 9; 13.30 (A101) prog 9; 14.00 (A101) prog 9; 14.25 (A101) prog 9; 14.50 (A101) prog 9; 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Adult education is in a parlous state. Local authority committees are fewer than they were, and likely to become fewer still, whether as a matter of deliberate policy, or in consequence of increases in the fees charged to students. Whenever there is severe restraint upon the funds for the education service, the sharpest cutbacks come in the area of non-compulsory provision. Section 41 of the 1944 Education Act gives a statutory basis for "leisure-time occupation" in "organized cultural training and recreational activities". But, unhappily, the duty imposed by this section upon local education authorities is formulated in such general terms as to be virtually unenforceable.

University extramural departments are unlikely to be able to fill the gap. They, too, are under severe economic pressure. The Secretary of State has recently increased the grant to the Workers' Educational Association by about £100,000 over and above the £900,000 to which it would have been entitled in any event. But this is to enable the WEA to shift the emphasis of its work to the "Russell" priority areas of educational disadvantage, industrial work, and social and political education. This is a worthy objective, the attainment of which will mean that more WEA courses will be relevant to the needs of the mass of the adult population. But there will be no net increase in overall provision.

In recent years money has been found for the adult literacy programme, the value of which lay not least in the release of enthusiasm and energy of voluntary workers that it made possible. The TUC now receives aid for the sponsorship of trade union studies. Students at the long-term adult residential colleges receive grants as of right, and are no longer dependent on the good will of their home L.E.A.s. But all three of these advances were made on a narrow front, and can only contribute to the general run of adult learners.

Mature students on degree courses are also in a better position now than they were a few years ago. Most of those admitted to a full-time course receive, by virtue of the 1975 Education Act, a mandatory award in the general field, the Open University has so far been sheltered against the worst severities of the economic blizzard. Student fees there have increased *par passu* with inflation, but demand remains at a high level. But all of this is small comfort to those adults who wish to pursue studies at below degree level.

Nor do we seem to be making progress towards any general system of educational leave of absence from employment. The French legislation for a general right to paid educational leave in 1971 (and the Swedes in 1976). Admittedly, the French have a habit of legislating first, and devising means of implementation afterwards. But we have not made any significant non-statutory arrangements. Most disappointing of all has been the history of in-service education and training for teachers.

The recommendation of the James Report that teachers should enjoy a right to paid educational leave, and the commitment to INSET made in the 1972 White Paper, *Education—A Framework for Expansion*, with an ultimate right to opt out of the classroom, could be seen in the harbinger of a new educational era. If it were desirable, their teachers should enjoy a right to "opt out" from work, devoted to the retraining and development of their professional skills, could not the same case be made with equal force for those in other professions and career structures? The yearning for a "career ladder" has long remained, the only profession with a general right to educational leave of absence ("sabbatical leave"). Short courses for teachers, and school-based training, have developed apace. But next year's L.E.A. estimates show a reduction rather than an increase in the sums available for full-time secondment, despite the urgings and pleadings of the Secretary of State.

Against this gloomy backdrop there stands one of the educational stage none other than the Prime Minister, to announce the inception of a "great debate". He chose to

## Gerry Fowler, MP, explains his programme for the future of adult and continuing education



## Agenda for better days

do it at Ruskin College, one of the shrines of adult education in Britain. Ironically, the "great debate" is concerned almost exclusively with the schools, and their role in servicing society. Decades of increased educational investment have not meant that all school leavers attain desirable standards of literacy and numeracy. (The standards, although doubtless desirable, remain undefined, partly no doubt because it has not been widely realized that it is unhelpful to discuss absolute standards, rather than standards relative to changing tasks and functions.) Therefore, instead of asking whether there is a fundamental design flaw in our traditional educational model, we subject its workings to an almost morbid scrutiny to see if tinkering with the engine will make it perform more effectively.

There is of course an alternative model. It is at least worth asking whether the substantial educational advance can only come from investment in a continuing or recurrent system of education and training. The potential of the "end-on-to-life" model may be nearing exhaustion.

First, there is a pattern of resource distribution which is almost inescapably with the traditional model. It is implausible to suggest that compulsory full-time education for all should be extended beyond the age of 16. So those who remain within the system after that age must be the most able and often the most advantaged. But the share of available resources that those who leave it, and the longer they remain, the greater their share. Further, the cost of each student year of full-time education beyond 16 increases steeply, culminating in an average recurrent cost of over £2,000 per annum for each full-time degree student, or over £4,000 if capital costs are amortized and included in the calculation. Thus, first, and devising means of implementation the legislation afterwards. But we have not made any significant non-statutory arrangements. Most disappointing of all has been the history of in-service education and training for teachers.

For this very reason, it used to be fashionable a few years ago to argue that resources should be switched from higher to nursery education. But even if it were not the most able and advantaged children who have in general benefited most from nursery education, this method of tinkering with the traditional model is unlikely to produce the desired result. Even if a straightforward reduction in the resources available for post-school education were socially and politically acceptable, it is not obvious that the nation's best interests would be served by a diminution in the educational opportunities open to its most talented members. That does not of course entail the belief that those opportunities should be restricted to, or even concentrated within, the immediate post-school years.

**The best get most**

Even within the school system, resources are likely to be concentrated most heavily at the upper end, the sixth form, and below it the fourth and fifth years. Within those years the larger share is likely to go to the most promising examination candidates. Here is one major reason for the continued under-achievement of many pupils. Once they have fallen behind in the learning process, especially in the basic skills, it becomes doubly difficult in the long run they will have

fewer, not more, educational resources devoted to them than their contemporaries who enjoyed early success. The abolition of selection at 11 delays the operation of this law, and it is in any case not universal in application; but it remains generally valid.

Second, under-achievement is exacerbated by an awareness among many pupils of their poor life chances. This effect can be seen very clearly at present, when more than a quarter of a million 16 to 19-year-olds are unemployed, and not undergoing any form of further education and training. If a pupil is aware that he is almost inevitably destined to join that same sad army of the streets, he has little motivation to apply himself to the school curriculum. The remedy lies not only in employment, but also in further education and training policies.

Third, the same phenomenon of high youth unemployment gives us the clue to the notion that a principal function of the schools is preparation for work. What work? This is not to argue that the schools cannot give some insight into the world of work, or develop some understanding of the nature of wealth-creating activities in the economy (as the phrase now has it). But the schools cannot and never could give adequate preparation for specific types of employment. They are concerned with the development of the individual, not simply with servicing employing agencies.

Fourth, the debate about a "core curriculum" in the schools makes sense only in the context of continued education or training. (These last two terms are not distinct in meaning, but I shall follow the convention, using them both when one would do.) This is apparent if we consider a core curriculum which once existed, for a minority of secondary pupils, namely matriculation, on the basis of credits in defined subjects in the school syllabus. This was geared entirely to an external objective—university entrance. As soon as we say that the schools shall remain for many things, but not for preparing them for a wide variety of jobs and life-styles, "core" studies must be whittled down to a narrow spread of basic skills and knowledge, in order to permit the inclusion in the curriculum of enough subjects specific to the individual's needs.

Thus, the topics central to the great debate themselves point to the need to develop a system of continuing education and training for everyone. Rational consideration must therefore be given to the most, industry and society, and changing more rapidly than ever before, it is nonsense to seek to transmit in 11 years of schooling the knowledge and skills which must serve for nearly 50 years of working life, and beyond into retirement.

Vocational training and retraining on a massive scale are essential elements in future employment policies. But any successful industrial strategy must also recognize that the number of man-hours spent at work will continue to decline. One key to restoring the competitiveness of British industry is capital investment in plant and machinery (as well as investment in human skills). But that is effective in reducing unit costs only if it is

accompanied by a diminution of the labour element in production. The total time available for leisure and recreation must increase. (How it is apportioned between individuals is a separate policy question.) In a civilized society, this too necessitates further opportunities for education and re-education.

We constantly discuss the continued democratization of the institutions of society—the workplace (Bullock Mark II), the schools (Taylor, or the health service. Much less often do we consider the education of the citizen body necessary to enable much larger numbers than heretofore to participate effectively in the determination of their own future. As it is, the general understanding of government (at every level) and of society is a disgrace to an advanced democracy—as every MP and local councillor knows to his cost. "We must educate our masters," said Forster. If we are all to be captains of each element in our own and each other's fate, the argument has renewed validity.

It was such considerations that led the Russell Committee to recommend the establishment of a National Development Council for Adult Education. But government fought shy of implementing this central recommendation. Russell had reported at the moment when economic gloom turned in long-term crisis; a development council—not least because of the implications of the word "development"—was seen as a new pressure group, demanding the commitment of resources which were not available in the foreseeable future.

### After cloud cuckoo land

When I was Minister of State for Education in 1974 I began to explore a more limited proposal: that there should be a council, initially with advisory functions only, based on the existing adult education agencies. The National Institute for Adult Education seemed the obvious choice, since it is more widely representative than any other adult education organization. I left the department after the October, 1974, election; when I returned 16 months later I discovered that no further progress had been made. Meanwhile, morale in adult education had plummeted.

Discussions last year revealed that the proposal did not have unanimous support. Many argued for a free-standing body, in no way tied to the NIAE. Adult educators in general thought the new body should not simply tender advice (in such a case the Secretary of State and the relevant departments should have executive powers, and some control over resource allocation. I had to convince those who advanced these propositions that they belonged in the present economic circumstances to the politics of cloud cuckoo land. Not only was the opposition of the Treasury to them certain, but so, too, was that of the L.E.A.s, from fear that decisions on the allocation of scarce resources which they saw as properly their own.

From the outset any new council should have the funds to sponsor a modest amount of research, or at least to monitor projects undertaken by others. Equally, I would hope that the economic situation improves, it might be possible to have the resources to undertake pilot deve-

lopment projects. But that in the future, the major task is to get the council set up. Even if it is serviced by a staff, it should not be seen as an appendage of, or subservient to, the Government. Its composition should differ from that of the Institute, with members chosen for their expertise as well as their representativeness. It should be particularly interested in the most difficult task will be to well as of providing continuing education and training. The NIAE and the CBI should be consulted—but who else? Knowledge, the Open University Association is the well-organized consumer of adult education.

Nor can the council's recommendations be subject to the NIAE. Its advice must be directed to the Secretary of State, and through her to the relevant departments. It should also provide a training and course development Agency of the Manpower Commission.

I hope the council will be able to forge strong links with the TSA, which should be responsible for the coherent development of continuing education in Britain is the function of TSA and DES and other bodies. Yet the distinction between education and training, which is not in the public mind, is given and by which it is put. A major new council must be set up to coordinate and coordinate training and continuing education, and to provide by diverse means to optimize the use of resources open to each adult learner. The course most suited to his needs.

As the Open University's *Report on Continuing Education* makes clear, there will be a place in future for national systems for industrial and materials centrally controlled (whether in printed or audio-visual form), but the development of such systems will be a long and arduous task. The Open University provides a system of home-based learning which enables those in full-time employment in industry and other sectors to study part-time for a degree. The university operates a modular degree system in which students accumulate credits towards their degrees and are free to put to rest any particular interest in arts, science, technology, etc., or mixtures of these subjects.

The new council will wish to examine the balance of provision between strictly local and what is widely available. It will study the local development council will examine the use that is made of existing educational resources, notably the schools, this the Taylor Report, and equally of such as adult and community centres. However, of course, a more or less led entirely emerges and the history is then able to order his report to show how the end product derives from the complex of conditions. As it happens, studies in the United Kingdom are still in the "diverse" stage. This makes a review difficult, not only because things are still in a state of flux but also because it is difficult to know beforehand which of the current strands will be dominant and how long they will remain so.

Teaching programmes based on the theme of science in its social context have been in operation for 10 years now. From the outset, a primary objective has been to make students of science and technology more aware of the social context of their subject. As part of this concern in the United Kingdom both the narrowness of scientific education and the failure to inculcate in this educational process some of the qualities associated with students in other countries.

Over the past 25 years, the scientific and technological communities have been cautious about making any major changes in the result has been that at least some of the earlier attempts have been only a marginal impact. For example, during the late 1950s an attempt was made to teach scientists something of the great literary achievements of our culture. This was accomplished by the juxtaposition of traditional science subjects

with some traditional arts subjects, principally literature and history. This experiment failed to capture the interest of science students. A few years later it was widely felt that science students would benefit from a knowledge of the history and philosophy of science and many universities set up new departments with the idea that they would have some impact on the general education of scientists. In this case, it appears that, following the rules of the academic game, most of these departments became excellent centres of research but made little impact on undergraduate curricula. In the meantime, Sputnik had been launched and the fear that this engineering feat generated gave a new emphasis to increasing the technical content of most university science courses.

The idea of a "teaching company" has been proposed by the Science Research Council. Professor J. J. Sparkes believes a prototype already exists.

## Britain's biggest untapped source of scientists and engineers

The third report from the parliamentary select committee on science and technology, entitled *University-Industry Relations*, makes and notes a number of comments about the present education of qualified scientists and recommends a number of developments. Although the long section on education and training contains subsections with headings like "New Institutions of Higher Education", and "New Initiatives in Education", it makes mention of the Open University as one of the growing number of students studying its technology courses.

No more than a brief reference should have been understandable to the growth of a satisfactory system of high quality Open University courses has not been rapid, but the complete omission of any reference to it suggests a lack of knowledge which is perhaps rather more prevalent in industry and government than is desirable. Now that a number of such courses are available from the Open University, and that they meet many of the criticisms levelled in the report at universities and polytechnics in general, I think it is time to set out in some detail the Open University's approach to the education of qualified technologists and its relationship to industry.

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## Can science studies survive an economic recession?

is a characteristic of most innovations that their early histories are marked by diversity. Subsequently, of course, a more or less led entirely emerges and the history is then able to order his report to show how the end product derives from the complex of conditions. As it happens, studies in the United Kingdom are still in the "diverse" stage. This makes a review difficult, not only because things are still in a state of flux but also because it is difficult to know beforehand which of the current strands will be dominant and how long they will remain so.

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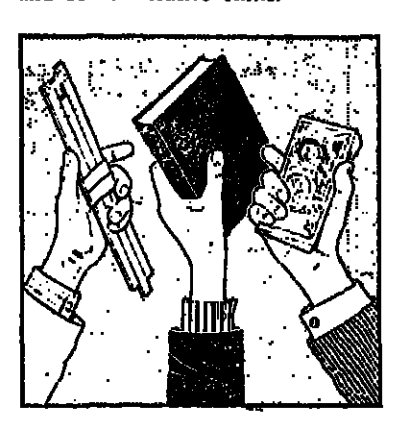
An ordinary degree requires six credits (some of which may be taken in pairs of half-credits). A course for which a credit is awarded (to successful students) involves about 350-400 hours work, and possibly a summer school. More precisely, it demands about 12 hours work per week for 32 weeks in the year of study. A degree with four courses involving eight credits, two of which must be honours degree standard.

The university is now approaching the stage at which students can select a coherent set of credits largely from the courses offered by the faculty of technology, supported by appropriate courses from science, mathematics, social science, etc., which are highly relevant to industry and to professional engineering in general.

The scale of the Open University's activities is sufficient to make considerable impact upon the overall national provision. The number of students taking technology courses is best expressed in terms of student-FCEs. An FCE is an abbreviation for full credit-equivalent. So a student taking one full-credit course counts as one student-FCE. A student taking a half credit course as a half student-FCE, and a student taking the maximum permitted in any one year, two credits, counts as two student-FCEs.

Since the university began offering technology courses in 1972 the number of student-FCEs has increased from 4,809 to 8,401 in 1976. If students studying for honours degrees study at a higher than average rate (and take, say, six years to graduate, starting from scratch) and if half of the students have the goal of honours graduation in view, the annual output of such graduates is likely soon to be in the region of 500,000, as compared with about 10,000 in 1974 from all other universities and polytechnics.

Let me now return to the report of the select committee. The report quotes as representative of a rather widespread industrial view the following comment on the normal university preparation of qualified scientists and engineers (QSISE): "While employers report that the top strata of QSISE is still of excellent calibre, they indicate with disturbing frequency that there is a growing proportion of those with only one or two years of university education who are entering the profession. This is illustrated in terms of such factors as poor personal motivation and little professional commitment; a lack of flexibility, breadth of vision and creativity in problem solving; need of close supervision and deficiencies in interpersonal and communicative skills."



Engineering and Industry

Those who know the Open University students, all of whom are adults over 21, will affirm their personal motivation and professional commitment is quite outstanding. If they need close personal supervision they cannot succeed in the Open University courses. The choice offered in course provision encourages though does not enforce

something about the contemporary context in which science and technology were functioning. Curiously, however, this element was joined to another, quite different one, that emerged about the same time: the anti-science backlash which swept through universities in most countries over the years 1968-72. Many scientists, among others, became concerned about what they interpreted to be the adverse effects of science on society. The linking of the scientific community to the military-industrial complex no doubt played a part in this development, but the upshot was that students were encouraged to be critical about the role of science and technology in society.

Courses based on this idea sought to create a new type of scientific education, one which was not only applied in science but also in society. The development of various teaching programmes in science studies in the United Kingdom has been understood if both these formative influences are kept in mind, because in nearly every programme both technocratic and critical elements can be found coexisting in various degrees of tension at any given time. In the case of Manchester or Edinburgh will be created. None the less, the numbers involved in the teaching of science studies is low, sufficiently large to allow subjects to continue to be taught, but not large enough to attract the interest of the most able students.

One consequence of this has been increased interest among potential science graduates in straightforward professional training. Universities and polytechnics are best equipped to offer this sort of training and after a few years of filling applications in science were only too happy to oblige. So it seems appropriate to ask at this time: "What of the future of science studies?"

Indications are for the most part optimistic. With cuts in public expenditure likely to continue for a few years yet, it seems unlikely that a new centre with the resources of Manchester or Edinburgh will be created. None the less, the numbers involved in the teaching of science studies is low, sufficiently large to allow subjects to continue to be taught, but not large enough to attract the interest of the most able students.

Second, a close examination of the job placements of students who take science studies courses is most encouraging. Most of the jobs available in our society lie outside the research and development sector and, consequently both



flexibility, and the need to communicate in writing in the regular submission of assignments throughout all courses demands the development of a variety of communication skills which will meet the commitments of the Confederation of British Industry.

However, perhaps the most significant point about many of the technology courses is that they achieve what we believe to be a new synthesis of the theoretical and the practical. Many of them can best be described as being concerned with teaching technology in the context of design.

By involving those working in industry in the writing and assessing of our correspondence texts and in helping with television and radio programmes (we filmed the instrumentation at Pilkington before its explosion), by relating theoretical analysis to the solving of real industrially based problems, and by exposing the complexity of even the most straightforward design tasks, we believe we are preparing students for the kind of problem-solving the CBI demands. A further comment, quoted in the report, made by a research and development manager, expresses more exactly the situation which we are trying to reach. He says: "More and more graduates are coming to us having followed the course material, known the formulae and the principles,

but they do not have an understanding of what is taking place." The report also refers to the teaching company proposed by the third S.E.C. report. This proposed "selected, well-managed and successful manufacturing firms should, in partnership with university and polytechnic departments, become teaching companies". Again it has to be said that the Open University could make this kind of "academic apprenticeship" a much simpler scheme to organize than collaboration with institutions whose teaching depends on face-to-face contact between dons and industrial trainees.

Open University courses, which already articulate the relationship between academic material and industrial work, can provide, part time and largely home based, the kind of support that industrial firms require in taking on new values. Indeed, the fact that many hundreds of Open University students are studying relevant courses alongside their daily work in industry, often with their employer's support and encouragement, suggests that the concept of the teaching company—or something very close to it—already exists.

Finally, let me add that the OU courses in technology, all of which have external examiners of high standing in the academic world, do not simply deal with topics such as mathematics, electronics, mechanics, instrumentation, the digital computer, design, communication systems, materials under stress, etc., which form the core topics of engineering degrees. They also cover the broader issues of design, of systems behaviour and systems management, of environmental control, etc. These topics are all related to the concept of technology, to which the report also refers, and are relevant to problems of industrial management and technological decision making.

It seems strange that the newest university in the country, which was established by Harold Wilson when he was prime minister, is not dealing constructively with many of the problems raised by the parliamentary select committee, should be wholly ignored in the committee's report.

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government and industry are on the lookout for graduates with a scientific aspect to their education who are aware of the political, economic and managerial aspects of science and technology.

Third, those interested in science studies have found a form of solidarity in the Science in its Social Context project: SISCO. Funded initially by the Nuffield Foundation and then by the Leverhulme Trust, this organization provides both an essential framework for the preparation and dissemination of teaching materials and opportunities to discuss aspects of teaching practice. Such activities are vital for the future of science studies and it is due largely to the existence of SISCO that teachers from Western Europe, Canada and the United States as well as the United Kingdom have been able to meet and exchange ideas.

Finally, if one looks over the recent history of science studies, one sees a tension building up between the desire to make science studies a rigorous and an academically respectable activity and the need to teach students who have a primary interest and perhaps even loyalty lies with traditional science. The former is necessary if excellence is to be a hallmark of science studies, while the latter is necessary if the goal of better educated scientific manpower is to be achieved. This tension can be resolved only by the continuing presence and involvement of scientists in the development of science studies. It would be a pity indeed if the scientific community lost its initial interest in this reflection on their activity and if, as a consequence, the control of science passed further from their hands.

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### Students 'need to know more about costs'

A seven-state survey of more than 4,900 prospective college students has found that students want much more, and more detailed, information about college costs and financial aid than they have been getting. More than half of them believe such information would change their minds about the type of college they select.

The study found that low-income students in particular want better information about costs and aid. The lack of it was so serious as to require a national information campaign.

Prospective students in California, Illinois, Massachusetts, Michigan, Ohio, Oregon and Virginia were asked how more information might change their college plans, and how they would rate 14 kinds of cost and aid information.

Half of the respondents said they planned to attend a four-year public college, 38 per cent a community college, and 11 per cent a private college; three times as many high-income students planned to attend private institutions as did low-income students.

However, 57 per cent of the students said they believed they would change their minds about the kind of college they would attend if they had more information about costs and financial aid at other types of colleges. This belief appeared at all income levels - 38 per cent of upper-income, 57 per cent of middle-income, and 71 per cent of lower-income students. In addition, over half of the students planning to attend community colleges said they would prefer a four-year college, if costs were not a factor.

Student interest in almost any kind of information increased as family income decreased. For all students, the most important college cost items were: how and when costs must be paid (73.3 per cent); the total cost of the entire degree programme until graduation (70.5 per cent); findings which may reflect the increase in investment-return ratio of a college education as opposed to other forms of post-secondary activity; and the prob-

ability of changes in cost from year to year (65.3 per cent). Black and white students ranked total degree cost and the "how and when" of payments as most important, and "Ladino" students ranked probability of cost changes from year to year as most important.

Based on their own and others' experiences, the study participants suggested several reasons why colleges and universities did not give students enough information. In some cases colleges may believe that telling students the truth about their costs would scare them away, or that information about financial aid programmes is too complicated to be truthfully communicated to students.

The college's financial aid administrator may lack the necessary communication skills, or be called upon to relay policies that are themselves muddled. In some cases a college may deliberately withhold cost and aid information as a way of limiting institutional growth or because aid officers are understaffed.

Until last summer there was no federal standard for what information colleges had to provide. But a law passed last year, which takes effect this July, says that institutions receiving funds under a student aid programme must give out proper information or risk having their funds cut or terminated. A college must tell students and parents what aid is available, who is eligible, how it is distributed, application procedures, recipients' rights and liabilities, costs of attendance and refund policies.

In the ideal information system suggested in the report, students and parents would receive information in two stages: at ninth grade level (age 15) they would get accurate general information on costs and aid; as they were about to leave school they would get specific information for each college they were considering. Students from low-income families would see that post-secondary education was a viable possibility for them, and all would be told about the conditions of loans and awards.

### New body to be set up after controversial Quebec strikes

In the wake of the two longest university strikes on record in North America - at Laval University and the University of Quebec at Montreal - the new Quebec government is to set up a special committee to look at higher education. The committee will have a role in Quebec universities should play in society.

The composition of the committee, its terms and its chairman have not yet been announced. But the Council of Quebec Universities - a government body similar to Britain's University Grants Committee - urged M Jacques-Yvan Morin, the Minister of Education, to set in motion a wide-ranging public debate. In particular, it wants the accountability of the province's universities and the responsibilities of teachers and administrators to be considered.

The Council is worried both by the bitterness that marked the two university strikes in Quebec, and by the public indifference to them. It said in a statement that society would only judge the importance of higher education and how much

money it should have according to what it saw as the relevance of the services it offered.

Universities now cost Quebec taxpayers \$600m a year - about \$5,000 a student - and it was this some kind of "account" was given for this by teachers, students and government, said the statement.

The Council was sharply critical of the breakdown of relations within the two universities that went on strikes. It said the state of internal relations had an important influence on university relations with those outside. If a university gave power to one group without reference to the rest of the university, it was cutting off a rich source of influence. For this reason administrators had always tried to bring into university government people from outside.

The Council said that if the government is to intervene in university affairs, it should be to ensure that everyone worked in an atmosphere of security, and that the university did not shut itself off from the demands of the rest of society. Disputes should otherwise be solved by those involved.

Our correspondent looks at the future of women's colleges in the United States

### Marriages of convenience?

As the women's movement gradually makes headway in the struggle for equal opportunity for women students and teachers in America's colleges and universities, a troublesome question arises: should the change be done with the small, prestigious and financially-pressed women's colleges? Should they carry on as single-sex institutions, go coeducational, or merge with neighbouring male colleges and universities?

The question has become acute as more and more women's colleges are being forced by their enrolments and soaring costs to take a hard look at their futures. In many ways their dilemma is like that of black colleges: the more opportunities there are in the mainstream of public and private institutions, the greater the competition to students on campuses at all-black colleges. And in spite of a general desire to keep a place for colleges which have traditionally done so much for the education of black or women, charges of segregation can now be thrown back at them.

In recent months the issue has surfaced at a number of well-known institutions. A small prestigious women's college in New York, Bryn Mawr, has been forced, through failing enrolment, to consider a takeover by Pace University, a bitter feud broke out in Pennsylvania between Bryn Mawr and Haverford, a small men's Quaker college which wanted to go coeducational. And in New York one of the most vexed questions of all is whether Columbia University is too complicated to be truthfully communicated to students.

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Many of these men's universities

made their decision on economic grounds, and because they found the best applicants preferred mixed colleges. It was not always easy for them. Princeton, for example, had a tough fight with its powerful alumni association which opposed the change - a fight that is still complicating its relations with alumni. The main reason given by the opposition was that unless the university doubled in size immediately, the admission of women would decrease the number of places available for men - which it has.

But women's colleges oppose co-education on more than just economic grounds. There is a feeling that women will inevitably be overshadowed by men at mixed institutions, both at student and teacher level. The best jobs will go to male academics, and men will tend to dominate student government and discussions in class.

Women's groups have pointed to the social and institutional support which all-women colleges give women, and research tends to bear this out. A study last year found, for example, that the "seven sisters" colleges have since the First World War been the institutions sending the highest proportion of women graduates on to post-graduate study.

The study published in the magazine Science said: "A favourable climate for women students who are intellectually motivated and capable is one that conveys to them a sense of being in an environment where there are many other women seriously involved in a variety of academic pursuits." At a conference last month on the future of Barnard held at the inauguration of the new president, Dr Jacquelyn Matfield, students expressed the same conclusion. A student from Wheaton, a small women's college, said: "This is a period in which a woman must establish her identity. A woman's institution gives her the supportive environment of different types of women... and role models in the faculty. It gives her more time. In a coed institution she has to

choose between being a man and being accomplished. In a women's institution she can do both." A student from the same institution emphasized the difficulties to college men, and the administration thought of teachers and classes with. She said Harvard had the banner for women's co-education for men.

The competing claims of co-education and of an environment for women to discriminate against men are difficult questions. Bryn Mawr strongly opposed to Haverford to go coeducational. Haverford president and the college president what they called the "ethical anomaly" in a situation of any policy discriminates against women.

One of the chief problems, Dr Soberon pointed out, is broadening opportunities for an adequate higher education for all who require or desire a career. To this end UNAM is broadening its decentralization programme and building more educational facilities away from the main campus, which was dedicated in 1952 for an estimated enrolment of 50,000 students. The student population has mushroomed to over 250,000 and this year is expected to exceed 300,000.

Decentralization has already resulted in the opening of three UNAM branches in outlying areas of Mexico City, and this programme is to be expanded. "Undergraduates must be made aware of the fact that higher education is not limited to UNAM," Dr Soberon said, "and that good edu-

### National university faces budget pinch

from Emil Zubryn MEXICO CITY

Dr Guillermo Soberon, who has succeeded recently as the director of the National University of Mexico (UNAM) for four more years, is taking steps to make major changes. An educational programme to channel future students to facilities in the provinces is also to be launched. The university is also working to help students secure careers other than the traditionally popular medicine, law, engineering and architecture. These schools are filled to capacity and opportunities for graduation are limited by a highly competitive market.

The main problem for UNAM, Dr Soberon said, is to seek economic self-dependence. Tuition fees are still little more than 200 pesos (£5 a year), and past attempts to increase the number of job opportunities for graduates have been unsuccessful. Dr Soberon and other members of the administrative staff feel that the current system is unfair.

A universal one for educational institutions throughout Latin America. Several countries have universities where governments guarantee financing and autonomy. But in most countries financing is as acute and chaotic as in Mexico. Latin American educators with Dr Soberon as a model voice among them, argue that universities should be the "conscience" of nations and should be unified throughout the continent in their goals.

Talk of unification has been going on for years but so far no concrete results have been achieved. And the majority of Latin American universities seem to be perpetually facing economic, political and student crises. This is primarily due to the fact that most governments of the area allow universities to exist but not to develop.

### First degree breakthrough for colleges

from our correspondent JERUSALEM

The Council for Higher Education has made history by granting three teacher training colleges (out of about 60) permits or licenses as institutions of higher education that do not engage in research. This permit is the first of three stages in a process which leads to recognition as an institution and finally to authorization to award the first academic degree.

The teacher training colleges will award the degree of BEd, a degree that is "equal to but different from" the BA or BSc, which the council wishes to reserve for universities only. The BEd will, it is hoped, attract equal salaries to the BA or BSc, but it is different from these degrees in that it is a terminal degree.

The Council only reluctantly granted recognition to two institutions somewhere in between a college and a university - the Academy of Music and the Academy of Arts and Design in Jerusalem. The former has been authorized to award the BA or BSc, and the latter the "equal but different" degree of Bachelor of Fine Arts (BFA) and Bachelor of Design (BDen). Both are striving so far in vain for authorization to award masters' degrees.

The Jerusalem College of Technology - an institution for male religious students only, who devote their half to religious studies - and the Shenkar College of Fashion and Textile Technology have partial accreditation and authorization to award a degree not yet given fully in finding an "equal but different" technological degree for them, one that will not create the impression that they are "second-rate" or "half-blow" technologies or engineers.

At the same time, the University of Cape Town's vice-chancellor, Sir Richard Luyt, said that "while the university believes in freedom of expression, it does not accept the publication of offensive material". Censored material included cartoons in all three papers.

### Spreading the joys of manual labour

Italy from Patricia Clough

Italian sociologists and politicians are suggesting that manual work be upgraded, both socially and financially, so that fewer young people would be tempted to seek a university education. The proposals have been prompted by Italy's massive graduate unemployment. Frustration and bitterness among students has provided the psychological fuel for the serious outbursts of violence and destruction of the past few weeks.

Unemployed university intake and the dwindling number of job opportunities for graduates have created a large pool - no one knows exactly how big - of degree holders with few employment prospects. Most of today's students will be forced to take jobs well below their qualifications and many will not find work at all. In practical terms it is easier to find a job without a degree than with one.

The Prime Minister, Signor Giulio Andreotti, told a conference on youth employment recently that it was time to "reduce the myth of the degree". He took up a suggestion made earlier at the same conference by a leading sociologist, Professor Francesco Alberoni, that manual work be better paid and given greater social prestige.

Others, however, point out that all this is more easily said than done. Professor Giorgio Tecce, dean of Rome University's science faculty, is close to the Communist Party said: "these things can only come about if you change the whole structure of society".

### Call for better deal for overseas students

from Mike Duckenfield STOCKHOLM

Future guest scholarships to study at Swedish universities should include the cost of travel to and from students' home countries and subsidies to support families and meet the cost of living at home, according to the Swedish Institute. The institute, a government-financed foundation which distributes the awards, also wants to increase the number of scholarships by 25 per cent as applications, mainly from the Third World, currently outnumber acceptances by about 50:1.

Although the institute only awards about 200 scholarships annually, the move is significant as it comes when the immigration authorities are planning to tighten up controls on foreign students, who are facing increasing financial and study difficulties.

### Campus papers face fresh curbs

South Africa from Martin Feinstein CAPE TOWN

South Africa's student press faces the prospect of increased censorship this year, as the university authorities themselves. Already three student newspapers - Rhodes University's *Rhodesopidion*, and the National Union of South African Students' *Student* - have been banned or censored by the two universities.

Rhodes University's vice-chancellor, Dr Derek Henderson, has taken the unprecedented step of threatening to formally institute pre-publication censorship if student papers do not conform to "reasons of good taste", accuracy, good manner and canon.

At the same time, the University of Cape Town's vice-chancellor, Sir Richard Luyt, said that "while the university believes in freedom of expression, it does not accept the publication of offensive material". Censored material included cartoons in all three papers.

### West Germans want more unified training

Top-level bodies in two west European countries have called for major changes in medical education

Medical education in the Federal Republic has been subjected to considerable criticism in recent years. The traditional division of two years' preclinical education followed by four years' clinical training (prior to further specialization), together with the content of these programmes, and the organization of medical facilities in university hospitals, have all come under scrutiny.

The pressure has been intensified because medicine is the most over-subscribed university subject. Last autumn there were 30,000 first-choice applicants for 5,500 places and many applicants had already been waiting for several years. This situation exists despite the provision of thousands of additional places at existing universities and the creation of several entirely new medical schools. There are now altogether 28 medical schools, three offering preclinical and two clinical facilities only.

Now the *Wissenschaftsrat* (Council for Art and Sciences), the government's higher education advisory body, has drawn up recommendations "relating to the aims, organization and responsibility for university schools". The Council assumes that in view of the present number of first-year medical students there will be no shortage of doctors in future, nor does it expect medical graduate unemployment.

The recommendations examine all possible sanction procedures for admission to medical courses, ranging from the basic *Abitur* qualification to additional tests and examinations, a probationary period at university, practical work or interviews. They conclude that as yet it is not possible to decide which of these methods offers the best long-term solution. They advocate parallel trials of all the entry procedures; if none works out a weighted lottery should be considered.

The recommendations running through the existing hospitals will from October accept 150 clinical students annually, thus creating a total of 450 additional clinical places for the university's three-year clinical training phase. Under the agreement the *Land* government will provide the additional resources needed for teaching and research, and the senior staff of these hospitals will become temporary university teachers.

They seem to have borne fruit in Nordrhein-Westphalia, where the new University of Bochum, which hitherto provided pre-clinical facilities only, will be the first one to introduce for a 10-year trial period such an arrangement. Instead of building a new university hospital, three existing hospitals will from October accept 150 clinical students annually, thus creating a total of 450 additional clinical places for the university's three-year clinical training phase.

Under the agreement the *Land* government will provide the additional resources needed for teaching and research, and the senior staff of these hospitals will become temporary university teachers.

### French commission calls for tightening up of selection

from Guy Neave PARIS

Sweeping changes are proposed for medical education in a report recently submitted to the government. Among the more daring recommendations of the Fougere Commission, set up to review training methods for medical students, are stiffer selection of applicants, the creation of special courses for preventive medicine and health economics.

Significant changes are also foreseen in the training of specialists and future consultants. These measures are intended, at least in part, to bring France into line with EEC countries in training which came into effect at the end of last year. At present, students wishing to specialize choose one of two routes. They opt either for specialist courses given in a university or in internships in teaching hospitals. The commission proposes bringing these two methods together. The future training of specialists will be hospital-based with seminars carried out within a university framework.

In order to cut down the number of students entering specialist areas, the commission proposes a competitive examination at the end of clinical training. It will be compulsory for all candidates except those entering general practice. In this way, it hopes to stem the drift away from general medicine.

### HEW Secretary takes back 'admission by quota' remark

Mr Joseph Califano, Secretary of Health, Education and Welfare, has retracted his remarks about the need for racial and sexual quotas as a means of redressing past discrimination.

In the wake of considerable criticism that followed his comments in a *New York Times* interview last month, the Secretary has told the press that what he really meant was that "there is an opportunity for all. He said that "in the medical school while refusing to accept a quota system for blacks and women" there should be "affirmative action to remedy the situation".

By that, he said, he meant special training courses and an effort to find deserving people - but not quotas that would require the admission of a certain percentage of blacks or women.

Mr Califano's earlier statement that quotas did not actually work caused a widespread protest from people who thought any quota system would be just another form of discrimination. A letter was sent to President Carter by 44 educators

### Drop forecast in English-speaking student numbers

Student numbers at Quebec universities in English-speaking countries are expected to fall in the 1970s. After that, however, will continue to rise and will be far less affected by the fall in the birthrate.

These projections by the Quebec department of higher education are based on the few Anglophone universities in the province, which have not eroded in the past 10 years. Between 1961 and 1970, enrolments in English-speaking universities fell by 10 per cent. In the last 10 years, enrolment in French-speaking universities has risen by 10 per cent.

In an effort to strengthen its case the university has retained Mr Special Prosecutor. The court is expected to start hearing the case in October.



Pennsylvania University; all Ivy League institutes but one were women.

Handwritten note: 10/11/77





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## After the tidal wave, a chance for recurrent education

A great demographic tidal wave has been sweeping through higher education in the last 15 years. It reached its first peak in the early 1960s when those born immediately after the war became of age to attend university or college, and it will reach a second in the early 1980s when their children in turn leave school. Then it will die away, quickly and mysteriously, leaving only the debris of expansion hunting on the surface swell.

These masses that passed through higher education between 1950 and 1963 will not, of course, disappear—except from the educational statistics. They will simply grow slowly older, through parenthood, middle age and retirement. They will have been expelled from the Eden of formal education, half at the age of 16, another third at 18, and the fortunate few remaining by 22 (except for those who manage to land the increasingly rare jobs as gardeners).

Thus nearly all the public resources allocated to education during such a narrow age band have never seemed strange. After all, outside primitive societies where a division of labour, intellectual or otherwise, has never been experienced nor a separation between learning and doing, the formal process of education has always been associated with adolescence and early adulthood. In particular it has never seemed inappropriate in a society which contained a high proportion of young people in its population, and Britain had for the 30 years following the war.

Indeed the "bulge" may have intensified the obsession of schools, colleges and universities with the young at the expense of other groups in the population. This demographic pattern may even be partly responsible for the exceptional character of higher education in the last two decades when at times other goals, whether reflective scholarship or extra-mural activity, seemed to be subordinated to the yearly struggle to process more full-time students, through the degree machine.

As the number of 18-year-olds—and perhaps of qualified candidates determined to enter higher education straight from school—declines, this bias will be corrected. Some, of course, fear that it may be over-corrected and that universities and polytechnics will find it difficult to maintain their present full-time student numbers without a deterioration in standards. This is almost certainly too gloomy a view, although they may be forced to rely less on school leavers for a regular supply of students. Early school leavers who have gone on to obtain higher qualifications in further education (already an important source of polytechnic students) and older students (the constituency revealed by the great success of the Open University) are likely to become more significant groups entering higher education as a whole.

**A subtle shift**  
But demographic decline is likely to have a more fundamental, if less visible, effect on universities and polytechnics. It will swiftly curtail any over-commitment to formal, usually full-time, courses for the young, and subtly shift their orientation in favour of less formal perhaps part-time, courses for the adult learner. This point has been made recently by a former university vice-chancellor and a present polytechnic director, Professor Elyn Richards told the conference of university convocations that continuing education would be a growth area in universities in the 1980s. Sir Norman Lindop told a London conference and a television manpower: "We (the polytechnics) expect that mid-career studies for adults will be one of our main growth areas in the future when the present adolescent 'bulge' has passed". This would also help to curtail the sterile "are the poly-

### Release of resources

The opportunity to make a new and exciting start in recurrent education, which has been offered by the lower birth-rate and the consequent release of resources has come at a time when the need to make a new start is greater than ever. The first, and most pressing, need is for a major retraining and reeducation effort to match the Government's plan to direct a greater proportion of the nation's resources to productive industry. Recurrent education, perhaps at the workplace, to reorientate workers to their new tasks and responsibilities will be just as important as retraining in a more functional sense.

The second need is for a strategy for recurrent education to cope with the long-term structural under-employment that a more sophisticated, and successful, economy is likely to generate. The modernisation of the British economy will demand more skilled workers but also probably fewer of them. Much thought has been given to the question of lowering retiring ages but much less to the raising of the age at which most people start work, or to the possibility of more extensive use of mid-career, sub-bachelor-type leaves.

The third need is the most important of all: it is for education for participation. The old authoritarian structures, at work in the community and in the home, are crumbling. In the short term they may have been replaced by a more vigorous exercise of trade union power, fashionable pressure-group politics, and individual alienation. But in the longer term a new and more democratic social consensus may arise in the formation of which recurrent education can play a crucial role. Perhaps it is not an exaggeration to suggest that the role of recurrent education in the birth of social and industrial democracy may be as important as that of compulsory elementary education in the creation of political democracy in the last century.

The Department of Education and Science seems hardly aware of this challenge, its sole being in a position to meet it. Its proposal for an advisory council for adult and continuing education is the most minimal gesture consistent with honouring the Russell committee's recommendation that a development council for adult education should be established. Nor does the DES appear to recognize that its policy on the future of the colleges of education, and more widely on the public sector of higher education as a whole, has important implications for recurrent education. The training levitation is not even answerable to the DES but to another Government department, the Ministry of Education, and the TSA again have great importance for the development of recurrent education. The need is there; even the will seems to be there; surely the will still seems to be weak.

## LETTERS TO THE EDITOR

### Sandwich courses

Sir—My experience as a sandwich course organizer has been entirely consistent with Professor A. G. Smithers's evidence (THESE, March 18) that universities mislead students by claiming that the work and study parts of these courses are integrated. Moreover, I submit that the prospectuses which include such claims further mislead students by implying that they will be able to obtain even complementary work experience—or, indeed, any work experience at all—during their courses.

Many students discover that their employers use them as cheap temporary labour on routine tasks and that their universities discreetly ignore the fact that this work experience has no relevance to their course of study.

Other students—and their number is increasing—are unable to obtain employment. Some institutions have hastily revised their degree regulations to enable students to complete their courses on a full-time basis in these "special circumstances". Another expedient has been to find odd jobs on the campus for unemployed students and to embellish them with the title of "desk research".

Although this serious situation has been exacerbated by the current high national level of unemployment it has mainly been brought about by other factors. Those are the progressive decline in employment opportunities for sandwich courses during the past few years and the concurrent increase in demand for the available employment places as the number of CNA sandwich courses has increased. The potential placement problem has been pointed out many times but has been disregarded particularly by the CNA Business Studies Board which has refused to validate any course unless it included up to three or even four periods of work experience.

In all these circumstances it is surprising that Professor Smithers (THESE, April 1) has "no doubts as to the potential benefits of the system". This confidence is apparently based solely on the unspecified and unquantified experience of most of the teachers who have been working on the development of the past 20 years.

If there is no other evidence of the distinctive advantages of sandwich courses I submit that the time is ripe for the abandonment of this and other time-consuming experiments. Especially in the circumstances which such courses may possess could be gained if students spent a year or two in full-time employment between school and university.

Yours faithfully,  
A. G. BRISSON,  
Aston Management Centre,  
Birmingham.

logical university and that both of us have taught in schools of studies operating sandwich courses and have supervised students on industrial training. Whatever the reasons for our differing assessments, it is not because one of us lacks actual involvement in the system.

There is little in Carl Hanson's letter which challenges my contention (based on a careful appraisal of the evidence, available for all to see in *Sandwich Courses*) that many of the claims for the so-called sandwich principle just do not stand up in practice.

In particular, there is often no degree of interaction between the work and study periods which is claimed in the college prospectuses and elsewhere.

He does make the point that Bradford graduates are sought after by potential employers. But so too are the graduates of Imperial College, London, Cambridge University and UMIST.

The relationships between education and industry are too important and too complex to be reduced to a "sandwich"/"non-sandwich" wrangle.

During the emergence of the technological universities and polytechnics, "industrial training", for a variety of reasons, came to be incorporated into a wide range of courses including the sciences, social sciences and humanities, as well as engineering and other technologies. In many cases it is neither industrial nor is it training, but the aim appears to be to look at life. To attempt a blanket defence of sandwich courses is to make exaggerated claims for the alternation of work and study periods. Much more important is the relationship between the practice of a profession.

Where a higher education course is directly related to some area of practical expertise, then there should be some systematic introduction to the application of that expertise. Indeed, in my present department we are firmly committed to the combination of work and study periods. However, we would not argue for this as a sandwich course, but simply as a good way of educating teachers. Similarly, medical schools would not explain the advantages of their particular courses by appealing to the sandwich principle.

The education of managers and technologists raises many important questions about what should be taught and how it should be taught. It is possible that some of the answers are contained within the present sandwich system. But alternatives like teaching companies and teaching fellows should also be considered.

Given the exigencies of the present sandwich system, many students spend too long in industry. Many are given low-level work roughly the equivalent of trainee doctors being asked to sweep floors, make beds and empty bedpans. Courses swamp the available places in industry which ought to be carefully cultivated to meet the needs of students whose future careers will lie there.

Sustaining the mythology of the sandwich principle, which was important to some institutions at a particular stage in their history, diverts attention from the heart of the matter: the intrinsic problems of educating creative engineers, technologists and managers.

Yours faithfully,  
A. G. SMITHERS,  
Division of Educational Studies,  
Department of Education,  
University of Manchester.

### The best judges

Sir—You report (THESE, March 18) that Professor the Lord Vassall-Askew Parliamentary questions, SSRC grants to members of council and of its committees. I am not in a position to check the full text of questions, but I very much doubt if anything wrong with what I for one, and I expect, most academics who deal with them, have no reason to complain. Having our affairs considered by fellow researchers and applications for support have the exacting tests imposed by and our peers.

Successful academics (and balanced as they are in the obvious ways) are surely the best judges of the allocation of resources for research, as they are of the distribution of UGC funds and questions of appointment, promotions in their own academic disciplines. Would Lord Vassall-Askew prefer to see SSRC funds administered by administrators, or by successful applicants for grants?

Yours faithfully,  
ROGER MORGAN,  
Professor of European Politics,  
University of Loughborough.

### Marxist journals

Sir—Please allow me to congratulate you in your article: "New Journal aims for 'crucial' discussion of Marxism" (THESE, March 4).

The leading sentence of your article asserts that "America's major academic Marxist journal" has been launched later this year. In fact, the article states, there is no real vehicle of Marxist expression in the United States. Whatever the projected outcome, it is not clear to me that the first Marxist academic journal in the States requires a remarkably sympathetic interpretation of the "real".

Despite long-existing hostile socialist ideas in the United States our country has a notable record of Marxist scholarly publications dating back to early in the century. In particular, *Science & Society* (calling itself "An Independent Journal of Marxism") has been publishing without interruption for years, a record unmatched by other Marxist theoretical magazines in the world. It has a circulation which reaches more than 1,500 copies and university campuses in the United States, as well as a number of other countries.

There are also a number of Marxist journals in America which are not termed Marxist—for example, *Socialist Revolution* and *Public Society*, not to mention the theoretical *Monthly Review*, which has wide academic circulation. Thus the magazine proposed by Dr Marchand and his colleagues is moving into an established community of Marxist journals. Readers will see what distinctive contributions it has to make.

Yours truly,  
ALVID GOLDWAY,  
Editor,  
*Science and Society*,  
445 W. 59th St, New York.

### Back to the caves?

Sir—May we assume that the "North American News" by Blizyn, which seems to be omitted from Washington, (THESE, March 18) is not a reference to that nation's educational situation, or is it back to the caves?

K. R. M. SHORR,  
Westminster College,  
North Hinksey, Oxford.

# Audio-visual review

The Times Higher Education Supplement April 15, 1977

**The fourth annual "AV at Work" exhibition sponsored by Audio-Visual Journal at Wembley from April 19 to 22**

The exhibition, aimed at higher education, commerce and industry, this year reflects the greater emphasis being put on simple-to-use inexpensive equipment in the range of projectors and tape slide machines, as well as the increasing production of ready-made programmes for training purposes.

Stand numbers are given next to name of firms

**Audio-Visual Equipment Ltd—(2)**  
Among new items being shown by the company this year are the Audio-Visual Converter MKIV, a variable control unit for use with automatic slide projectors, said to be ideal for training purposes. Now features incorporate a special built-in delay to cut out shutter snatches of a flashing LED indicator light showing manual or record mode while the use of solid state integrated circuitry is said to have improved reliability.

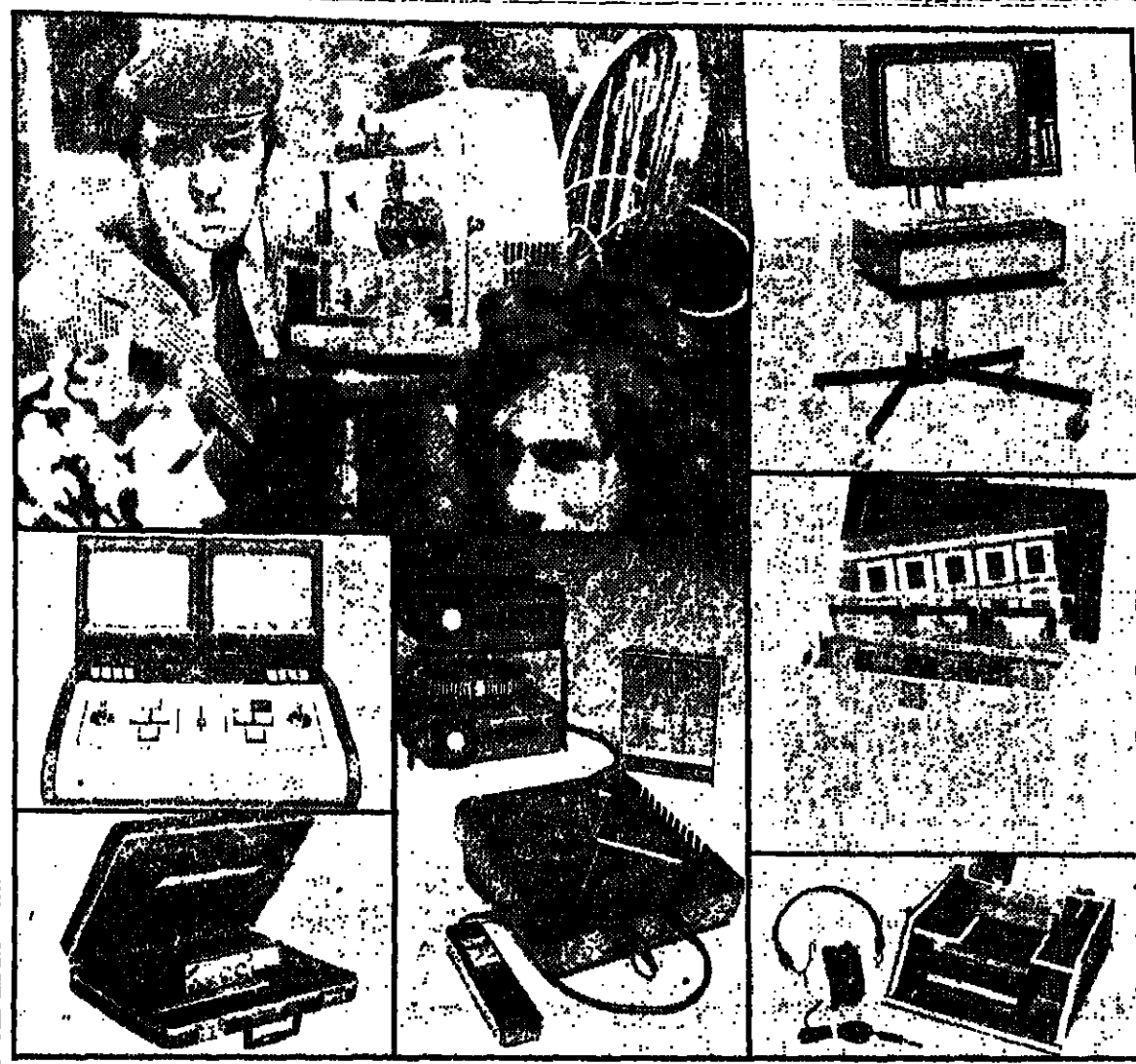
Intended for lecturers or anyone who wants to project their slide programme "live" another new unit the Mini Converter is manually operated. Said to be ultra simple and inexpensive it, however, lacks the record facility for automatic programming of the Mark IV.

**AV Distributors (London) Ltd—(7)**  
The company import and distribute the Beaulieu Super 8 and 16mm silent training television production machines, Heurtier silent and sound projectors. Biora projectors, Alentoux and Schneider Zoom and fixed focus lenses.

In the Home range of projectors, AV are showing among others the "Stereovox" said to be the first stereophonic Super 8 projector in the world. The machine offers automatic and manual control of records and two optical level indicators for recording and playback.

**BASF United Kingdom Ltd—(No 23)**  
Among new exhibits on BASF's stand will be the BASF U-matic incorporating their own formulae chromium dioxide tape coating which is capable of a signal to noise ratio in excess of 45dB and a drop out rate of less than 30 per cent. Other new products are the C2SR videotape suitable for black and white and colour recording on helical scan and segmented field (BCN) cassette recorders. And BASF 9120 cassette recorder suitable for educational and training purposes with automatic switching between chromium dioxide and ferric oxide cassettes.

**FVO Bauch Ltd—(4)**  
Bauch are exhibiting, as last year, their Revox audiocassette microfilm-based AV system. This system has been successfully used in education and training in Europe is currently being evaluated by users of advanced instructional systems in the United Kingdom. It consists of a rear projection unit with a built-in A4 screen for small groups and a front projector



Clockwise from top left—Grabatt Stark demonstrates the feeling that "somehow this machine is getting out of hand" in a CTCV training film; Unicol's VS1000 video system trolley unit with video recorder platform; Kenro/Panodia "Pannoclas" suspended slide file system with 1,000-slide portable store; Elliott and Sons' "Slideite"; Audio-Visual Equipment's Animatic Converter MKIV dissolve control unit; EDC Cytarus CTS slide-microphone in carry-case; Keepline Productions' ECS-1 editing control system.

unit for large groups. The projectors are operated by a remote control encoding unit. Automatic synchronization is achieved by addressing a binary coding via the upper track of any good two-track AV tape recorder.

**City Video and Training Centre—(106)**  
City video will be showing their latest training television productions, for example, "Letterwriting" to assist in the training of clerical staff and "Telephone, right and wrong way" to be used in telephone technique courses.

The centre part of the London and Manchester Assurance group the "Stereovox" said to be the first stereophonic Super 8 projector in the world. The machine offers automatic and manual control of records and two optical level indicators for recording and playback.

**Churches Television and Radio Centre—(10)**  
The CTCV are part of the Lord Rank Foundation and was originally established in 1959 for training the clergy of all denominations to give the late night television epilogue. Since then CTCV has much expanded its training courses and has also been involved in making its own productions. These included television dramas, documentaries, animated cartoons, training films, radio programmes and sound cassettes.

**Electronic Picture House—(80)**  
One of the main reasons for the company introducing new ranges is due to the inadequate supply position of more established lines against the continuing growth of the video market. Electronic Picture House will be showing a new multi-standard U-matic colour video recorder/player with a built-in television signal tuner which has the facility of recording off air programmes without tying up a separate television receiver/monitor and able to

reply material from numerous world sources.

**Elite Optics Ltd—(100)**  
The company are a subsidiary of Gnome Photographic Products Ltd and will be showing the Elite 91 2008LV Viewrite low voltage overhead projector which is now available with a choice of three focal length lens hood units at an extra cost. In the Gnome range of products it will be showing the Gnome tape/slide synchronized unit which combines an automatic slide projector and a cassette recorder in a case and provides facilities for recording commentary.

**Erdic Audio Visual—(17 and 18)**  
Erdic hire out and sell a large range of audio-visual products designed for educationalists and training officers. One such item is the Magnaflex 16 Double Band Projector which is now developed from the Bell and Howell TQ III series of 16mm projectors. The basic of the system is a continuous loop type cassette called "ContinuSound". This new cartridge accommodates variable lengths of tape of up to 22 minutes' playing time.

**Farnell Audio-Visual Ltd—(22)**  
The majority of the AV products being shown by Farnell are aimed at higher education. Among these is the new Philips language trainer comparable with DIN and IFC standards which not only provides miniature language lab facilities with audio active and comparative facilities but also doubles as a normal cassette recorder with slide sync capabilities. The machine can be used for self-teaching or to tune into broadcast lessons.

Among other new items is the new electronic design in hi-fi receivers, the Nitech CTA252, which resembles a desk calculator. The instrument is particularly adaptable to music departments' requirements and several versions are available. Another item is the Pye Belle System 16 consisting of practical system to enable ordinary UHF receivers to decode the Coctax and Oracle transmissions.

**George Elliott and Sons Ltd—(53)**  
The company are showing a wide range of new products this year. One particular unit, the Wessex Audio-Visual unit was built at the request of the Southampton Teaching Media Centre for use by the Wessex Health Authority establishments. The basis of the specification was for a reliable slide projector and tape recorder joined by electronics into a simple robust housing to form a low cost automatic tape slide unit. This has resulted in two commercially available units, the Wessex AVU Automatic and the Wessex VUW.

**Gordon Audio-Visual Ltd—(51)**  
The company have recently been appointed distributors for a range of tape/slide equipment manufactured by International Audio-Visual, an American firm. The basis of the system is a continuous loop type cassette called "ContinuSound". This new cartridge accommodates variable lengths of tape of up to 22 minutes' playing time.

**KEM Electronics Mechanics Ltd—(44)**  
During the past two years KEM have been designing and supplying complete Super 8 systems for universities, colleges, hospitals. On display at the exhibition will be most of the different products which go to make up the systems they have built up. At the moment the company is also handling *Handbook of Super 8 Production* step by step guide with information on available equipment, fitting and sound techniques, editing and mixing procedure, right through to release of finished film. The handbook also gives a dozen case histories of how it is being used in education, science the arts, and medicine.

**Macmillan Film Productions Ltd—(33B)**  
They will be showing a number of training programmes which have been produced for retail companies and their recently marketed "Industrial Relations" package. They will also have on display the La Belle range of audio-visual equipment. This will include the La Belle System 16 consisting of practical system to enable ordinary UHF receivers to decode the Coctax and Oracle transmissions.

**Hackness Screens Ltd—(105)**  
Hackness have been manufacturing screens since the 1920s and will be displaying their range of Miralysc screens which come in 16 different models. The screens are portable and are therefore ideal for education and training. A considerable amount of the firm's work is custom built to suit customers' specific requirements.

**Nicholas Hunter Educational Film Strips—(83)**  
Nicholas Hunter will be showing their wide range of wallets designed for the needs of both those who wish to store slides and those who wish to publish and display them. New products on display will be in the Pocket Waller range which can take notes or cassettes and slides in booklet form and are available in clear PVC. They take slides from 8 up to 100. Special order for wallets manufactured in any kind of PVC are also dealt with.

**Kenro Photographic Products—(33A)**  
Kenro specialize in the supply of photographic transparencies and print presentation and storage products. They will be demonstrating their range of Panodia suspended and "book form" slide storage systems which are suitable for all popular sizes of slides from 35mm to 4in by 5in and their "Topclass" A3 size slide display system. Kenro are the United Kingdom importers of quickpoint slide mounts.

**Keepline Productions—(55)**  
The company will be exhibiting the Convergence Corporation of California's digital control system Digital LED tape editors, joystick Search Modula and PCS Program computer. The ECS-1 editing control system is ideally suited for on-line editing jobs.

It interfaces to Sony 2000 and others, has a dual joystick control for forward and reverse, tape motion for edit point selection, a continuously variable tape speed from still frame to three times play speed in forward and reverse, repeatable preview capability in both still frame and real time, simultaneous or sequential cueing with automatic recall, editing accuracy to within one frame and a digital interlock logic for error-proof operation.

**John King (Distributors) Ltd—(103)**  
John King act as distributors for a range of 16mm projectors manufactured by a Milanese firm, Pumeo. For several years this equipment has been sold to universities, colleges, television companies, polytechnics and schools among others. New items on show are the Professional Super 8 projector, the 16mm model Pumeo 1114, an optical machine with push button controls and the Pumeo 9130 overhead projector.

**KEM Electronics Mechanics Ltd—(44)**  
During the past two years KEM have been designing and supplying complete Super 8 systems for universities, colleges, hospitals. On display at the exhibition will be most of the different products which go to make up the systems they have built up.

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continued on page XVII



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**Putting a political eel in the can**  
John Miller

In the opening film for the Open University course "Mass Communications and Society", John Sears, Ronald Reagan's campaign manager, said that the nature of the political business in America was such that you always anticipated perceptions rather than deal in realities. And television had a great deal to do with creating what those perceptions were.

The first four films of the course show what happened behind the scenes in Kansas City last August. Each of the big three American networks bought large television audiences at the Kemper Arena to bring the Republican Convention to the public, and ABC granted us unprecedented access to film their editorial and production processes and interview whomever we wanted.

No television producer would ever have allowed us to film in the main control room, or any of the subordinate control rooms, if it entailed the customary television lights blazing in his face during transmission but fortunately technical advances since the 1972 conventions had made available special "fast" lenses, that let us capture some unique footage for our students.

Last August I spent several days sitting around executive producer Robert Siegenthaler's office, observing meetings, and being introduced to any number of the 500-strong ABC staff who dropped in; so that when the film crew arrived I had established who the key figures were, and was able to film the decision-making process that went to shape the story offered to the American electorate.

To try and ensure that we did not miss any essential event we split our small team three ways. While I stayed close to the executive producer and the heart of the operation, one of my producers, Guyan Pritchard, concentrated on the anchor studio and the floor control operation within the arena itself, and our academic colleague, Michael Gurevitch, had the somewhat daunting task of monitoring the output of CBS and NBC as well as ABC.

Guyan Pritchard and I leapfrogged each other with our single



An ABC floor reporter, Herb Kaplan, interviews a convention delegate.

three-man crew, so while one of us was shooting, the other was observing and planning for the next set-up. Nothing could be rehearsed, pre-arranged, or repeated, we had to judge when to turn over and when to cut by instinct.

The technology involved in the convention coverage is mind-boggling in its scale and complexity. In the main control room Robert Siegenthaler faced a bank of 48 monitors offering him pictures from 26 electronic cameras inside and outside the Kemper Arena, such as down in Kansas City at the candidates' headquarters, plus playback of edited videotape, still pictures, and several different kinds of electronic display both pictorial and graphic.

A battery of switches in front of him plugged him into the ear of the anchorman, the floor reporter, or any of the other reporters outside the arena. Sometimes he looked as if he were playing the piano as he talked to several reporters simultaneously to brief them on what had just happened somewhere else.

At a meeting we filmed before

**Educational media in the Third World**  
Florence Marriott

Now that adult education is moving away from its marginal position in relation to formal education and is assuming a more central role its importance to economic, community and national development seems at last to have been recognised. In addition a sharper awareness of the individual learner who has missed out at some point in his formal education, has emerged.

In Britain the success of the Open University and, at the other end of the spectrum, the BBC Literacy Project, are also notable because they have reached thousands of individuals in the home through the mass media of radio and television.

Adult education in developing countries has different priorities and objectives from those of the West. Rapidly increasing population, illiteracy, urban unemployment and rural development all pose special problems. To quote President Julius Nyerere of Tanzania, "We cannot afford to wait for the children; we must educate the adults."

The British Council's involvement in the educational media field has always been concentrated in the Third World. As an agent of the Overseas Development Ministry for carrying out training and administering aid projects, the council has responded to the new British aid strategy which recommends more help for the poor in the least developed countries by moving further into the area of what non-formal education.

This has been reflected in meeting requests for consultants to advise on projects such as the development of radio for adult education in Thailand and Nepal and on distance education in Peru, Mexico, and Japan. Council officers have carried out media surveys and feasibility studies in a number of countries and advise on the design, organisation, equipping and staffing of media services.

Training is a major aspect of British educational aid and the council has run a variety of courses in London and overseas on television, radio and audio-visual media production in non-formal education.

For example, five students from the Sudan Rural Television Project are currently studying television production, and another, graphic design for educational television in integrated council courses in London.

But trends are moving away from training in the cultural environment of the West and the council has also given assistance in setting up and running courses at the various national and regional communications centres, such as the Kenya Institute of Mass Communications and the Asian Institute for Broadcasting Development, where specialists can develop their skills in an appropriate context.

To gain a perspective of the value of the media in adult education in the Third World, it is helpful to divide them loosely into three categories.

First come the large-scale communications media of broadcast television and radio. Television's contribution to adult education lies primarily in the areas of general cultural programming (more a Western phenomenon) and as a distance education component in analogues of the Open University or in-service teacher education projects.

Television in the developing world usually has the limitation of reaching only the well educated, and generally rich, in the cities and not the priority audiences in rural areas. The striking exception to this was the recent Indian State Instructional Television Experi-

ment, which, for its one year's duration, relayed carefully researched and prepared programmes to audiences in 2,400 remote villages.

An increase in the use of television for non-formal adult education projects is now predictable. Nevertheless, it is likely that broadcast television will continue to take second place to radio.

Radio appears to be the best medium for non-formal adult education, when used by organized listening groups, who can discuss the programmes to decide on action and implement it. The first rural radio forums were established in the 1930s and they are still going strong in many countries. Tanzania has run five national development campaigns by radio.

After the broadcast media come the small-scale communications media. Portable, small format, reel-to-reel, audio cassette recorders, and to a lesser extent 8mm film are being used for some of the most interesting and promising developments in the use of the media.

Non-professionals can operate the equipment and material can be quickly and cheaply recorded and instantly played back. Production can be decentralised, projects and programmes localised.

Participatory programme-making of this kind was first introduced in the Canadian Challenge for Change programme, which in a variety of

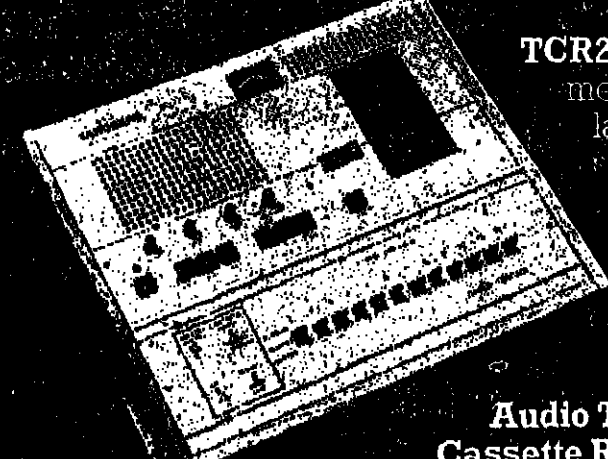


A location filming exercise on a British Council course on audio-visual media production in non-formal education. On camera is Mr Ian Raymond-Tex M'Buta, from the Extension Aids Film Unit of the Ministry of Agriculture and Natural Resources in Malawi.

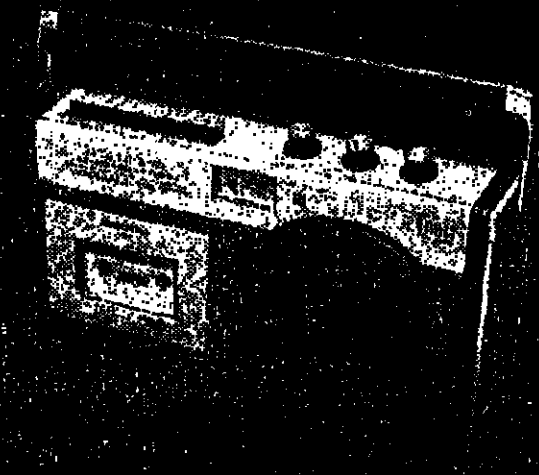
exercises, notably with Eskimos in the Skyriver Project, first encouraged under-privileged communities to use videotape and film to identify their social problems. After discussion and definition of the issues, the community was able to present its case—also using the media—to government officials. They succeeded in obtaining the educational and housing reforms they wanted.

The author is educational technology officer, media department, British Council.

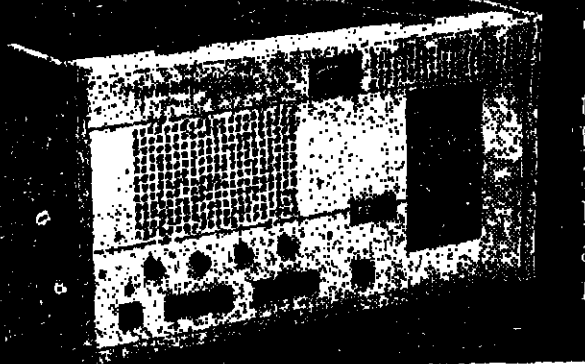
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## Preserving the past on celluloid

J. V. S. Megaw

Archaeology like art history is nothing without images. In view of this shattering truism it is surprising how little television of film seems to be used in the teaching of archaeology at tertiary level. Slides, yes; film, for amusement only and closed circuit television scarcely ever.

There are "certainly doubts expressed amongst both the teachers and students as to the value of such new-fangled devices as the talking pictures but a recent survey conducted amongst first-year students at Leicester University suggests a usefulness both in introductory courses and for the explanation of complex techniques.

Yet archaeological films certainly as record rather than as a form of instruction, have been made for the past 50 years. Brief extracts of film of excavations carried out by the University of Chicago's Oriental Institute in the 1920s can be seen in a compilation film made in 1952 by the institute. Whilst in 1937 in the United States Ray Warner's famous film makes of archaeological programmes, was credited as "staff cinematographer" to an expedition to the Arizona-Utah desert.

Film as record of the living—or rather the no-longer living—has an even greater antiquity. The anthropologist Baldwin Spencer was filming Australian aborigines at the turn of the century and such television series as Granada's "Disappearing World" and BBC television's "Tribal Eye" are worthy successors, though now the film-as-record has given way at least in part to the film-as-instruction or, more often, the film-as-entertainment. Certainly, some of the most interesting recent "record" films available are those from Eastern Europe, Korea and China, notably several films made of the remarkable finds of the last decade.

Here perhaps lies the greatest problem in the use of television and film as teaching media—or rather two problems; knowing what there is and knowing how good it is when one has found it.

As in so many other things, the Americans have the advantage of us; the Archaeological Institute of America has had a Committee on Films and Television since 1955 and the Journal American Anthropologist has in recent years become a veritable *Cahiers du Cinéma* *Archéologique*, most recently with a critical review of some 170 archaeological films, the result of four-year long research programme by Thomas Wight Beale of Harvard and Paul F. Healey of Rutgers University.

In this country, the Royal Anthropological Institute has a film committee and over some 170 months have a number of archaeologists concerned in teaching archaeology both to university and

## Haphazard search for services

Elizabeth Oliver

A survey conducted at Lancaster University to ascertain the different patterns of media use in various subject areas form the basis of this paper.

Michael Roberts presented the study *The Use of Audio-Visual Materials by Individual Subjects in Departments Within a University and the Development of Library Services* as part of work towards a degree in librarianship and the dissemination of information on audio-visual media from a librarian's viewpoint.

Some of his findings are not altogether surprising. The biology department has the highest proportion of users and the philosophy department the lowest. Nevertheless, the survey is a useful piece of evidence and gives a picture of the way in which audio-visual media were handled in a small United Kingdom university in 1975. As a background he explains the links which the Media Services Unit has with the library and the resulting administrative and physical arrangements of services.

As well as examining the position in this one university, Michael Roberts draws on examples from the literature to indicate how subjects are handled elsewhere since Lancaster is not entirely representative. It is, however, not the amount of use revealed which is the most interesting result of this survey but rather the information on how people find out about audio-visual media in the first place. Mr Roberts concludes that the search for even more haphazard than that for books, with more reliance on colleagues than on library staff or catalogues.

He mentions the "strong feeling in certain quarters against centralised services" but does not offer any solutions to the problems of whether a department could build up its own collection of

adult education classes come together to form an Archaeology and AV Media Working Party in an attempt to co-ordinate various overlapping projects aimed at the listing and appraisal—of audio-visual materials. Although Southampton University's adult education department produced in 1975 a long list of *Films on Archaeology*, this list is unselective and already in need of considerable revision.

It is hoped soon to emulate our American colleagues and offer critical comments on new and past programmes through the medium of the regular *Newsletters* published by the Council for British Archaeology and the British Universities Film Council. At present the forthcoming edition of the BUC's catalogue *Audio-Visual Materials for Higher Education* has on file a mere 30 titles for positive inclusion. More specialised lists have been issued or are also in preparation by the CBA's Schools Committee and Leicester University's department of museum studies.

Nor should one forget that even seemingly "outdated" films may have their educational uses. Thus "The Beginning of History" made at the time of the Festival of Britain by the Central Office of Information contains some early examples of experimental archaeology which however pale into insignificance beside the reconstructions made with the co-operation of the National Museum of Denmark. Footage of these reconstructions was rescued after the end of World War II and used in "The Vikings, their ancestors and descendants", a film all too obviously sponsored by the Tuborg Breweries.

Film appraisal and availability comes after film making—another truism. In this country, we have certainly nothing to compare with the high level, both technical and educational, of the films produced by the French Service du Film de Recherches Scientifique, though Leeds University Television Service has made a number of useful record and instruction films employing on-site rostrum and animation sequences of which "Sandal Castle: excavation of a

medieval moat" is arguably the best such produced in Britain in recent years.

So far, again unlike the United States, surprisingly little has been done either in the field of laboratory work with videotape through the University of Bradford's School of Archaeological Sciences or in producing a number of tapes intended for self-instruction on various aspects of dating and archaeological observations.

There are, of course, educational film companies making archaeological material both here—Gateshead Films for example—and in the United States of America—Crown Films and those distributed by McGraw-Hill Company can be mentioned.



A pioneering example of anthropological cine-film: Australian aborigines at Alice Springs (National Museum of Victoria, Melbourne).

But it is the television companies themselves which undoubtedly remain the largest untapped source.

The Open University has set one course, a second level unit called *Early Roman Empire*, which so far has produced audio-visual material of what might be termed general archaeological nature. As so often in archaeology, it is a question of survival and it is difficult to have to comment that not only is much of the earlier material made by the BBC not generally available—much simply no longer exists. It is a matter of record that the new AV Media Working Party includes representatives from both the BUC's History and Archaeology Unit and Anglia Television, one of whose directors is a course television's best-known archaeological tele-don, Professor Glyn Daniel of Cambridge University.

A current example is laser holography. The agency is financing a joint pilot project in cooperation with Loughborough University department of mechanical engineering, Leicestershire County Council, the Foundry Industry Training Committee and the West Bromwich College of Commerce and Technology.

Its aim is to apply and carefully monitor this technique of displaying three-dimensional images, in order to help first-year university technicians in relating two-dimensional drawings to three-dimensional objects, an area in which for a long time students have found difficulties.

The important feature of this project is that it was not just a "bright" idea, but one which had already been developed to an application stage and in which a number of responsible and experienced training and education bodies saw real possibilities, where they can be supplemented by magnetic cut-outs or by directly writing on the board. Cut-outs are particularly useful in training in fault-finding.

A most interesting development in which the units concerned have played a major role has been in the field of animation, for example, trial development have been explored, amongst others by Shell, BP and ICI in studies of pollution and the environment. Other industries like electronics, steel or civil engineering have contributed some classic films.

Sponsorship policy reflects on the one hand the objectives and on the other the current conditions of the sponsoring organization. One can quote British Transport and the National Coal Board as old established industries adjusting to the changing needs of the times and in so doing resorting to films which range from technical training to sophisticated technological studies for top management, from hard sell commercials to subtle public relations. Some organizations, because of the nature of their products, have special concern with safety or with the proper use of materials and equipment.

All sponsorship reflects vested interest. Whilst there have been gross examples of promotion masquerading as education, too often the education world has been unduly suspicious of the sponsored film with the result that many excellent productions have failed to enjoy the distribution they deserved.

But distribution, like production, is affected by economics and those in education today have felt the impact most by seeing the rapid contraction in the number of libraries offering free sponsored films.

Less obvious, perhaps, but more serious in the long run, has been the influence of recession on the type of films produced. Some notable examples are the *ICP's* presentation of the company accounts. The UK Atomic Energy Authority's "Criticality" about the principles of nuclear fission demonstrated that a specialist film for a restricted audience could become a "best seller" with general audiences.

British Transport, with its classic style of secure film, showed that an in-social or technological conditions. This may limit the number of new films which sponsors will promote.

War-time and post-war development of the sponsored film reveals a remarkable range. During the war itself "Listen to Britain" showed what could be done with location shooting and live sound done to put across a message.

Kenia's "The World is Rich" posed a problem in 1947 which is more acute today. "ICP's" presentation of the company accounts. The UK Atomic Energy Authority's "Criticality" about the principles of nuclear fission demonstrated that a specialist film for a restricted audience could become a "best seller" with general audiences.

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## 3-D images by laser help technicians

S. J. Dalziel

For the professional trainer, audio-visual aids should not only enhance learning, but do so in an appropriate cost-effective way. Their use (or should) form one part of a total learning design.

Such an approach will take account of what is to be learnt, the characteristics and talents, and the conditions under which learning will be taking place. Consideration must also be given to the practical problems of flexibility, reliability, acceptability and cost in relation to learning gain.

Here are three examples of the approach being taken by the Training Services Agency within this general setting. First, the agency supports developments in new and potentially valuable fields.

A current example is laser holography. The agency is financing a joint pilot project in cooperation with Loughborough University department of mechanical engineering, Leicestershire County Council, the Foundry Industry Training Committee and the West Bromwich College of Commerce and Technology.

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## Enlightened sponsorship still needed

Alec Hughes

The precedent set long since by the Empire Marketing Board in showing that large organizations could sponsor films on subjects of direct or indirect relevance to their commercial interests has produced a rich harvest of material acceptable to audiences of all types.

It is a field in which Britain has long been pre-eminent, from the days of "Night Mail" or "North Sea" (as early classic documentaries) or "Transfer of Power" as the successful presentation of a technical subject only recently replaced with a new production whilst still enjoying wide popularity.

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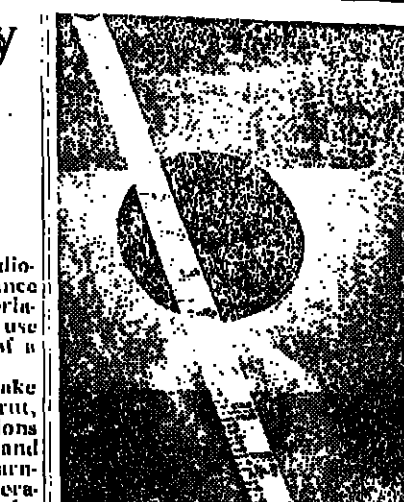
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Holographic reconstruction of a metal object with a ruler passing through it.

roles at many levels in organizations and need to advise on and make an imaginative and relevant use of audio-visual aids and methods.

Thirdly, the TSA uses audio-visual aids in its own direct training services at skillcentres. Here it is engaged in practical trade training, carried out in many centres to strict national standards of content by trained instructors who are also highly skilled practitioners.

The problem was how best to support this type of training in which by far the greater proportion of time is spent in practical work. The solution has been to make extensive use of the overhead projector and our approach has been not only to ensure that the results are fully professional, but also to exploit to the full the use of a standardized 10in by 10in frame, with high quality transparencies and with overlays which can be used by the instructor in his own sequence, sets have been carefully designed, validated and fully printed. They are produced on a standard white board where they can be supplemented by magnetic cut-outs or by directly writing on the board. Cut-outs are particularly useful in training in fault-finding.

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using a specially designed transparency and placing this over a small and a horizontal grid printed on extremely realistic representations of a story with video in any direction, are obtained. This system of animation can also be used to explain procedures and flow charts. It is entirely under the control of the instructor.

As an essential part of the system a standardized kit has been produced for each skill centre to prepare its own transparencies and cut-outs to a high standard. In short, a fully exploited, economical, durable and flexible system has been introduced with remarkably small, though highly expert, resources.

Using the same principles of cost, versatility and suitability to the practical situation, sound/slide projectors are being introduced for use in areas such as safety training. Programmed tests are used to meet individual needs because of learning difficulties or phased entrance to courses or where a trainee has missed some background explanation, additional training is required.

One problem which seems indeligenous to the use of audio-visual aids is that their actual use in practice depends very much on the willingness and ability of the user.

Several studies in the educational field have indicated and analysed the under utilization of audio-visual aids. Similar surveys in industry of desk drawers, file cabinets and storage shelves might well give equal food for thought.

Care is therefore needed in deciding not only what to introduce, but how to introduce it; for instance, what discretion and flexibility in choice of media should be built in so that aids are seen as supportive and relevant at "the sharp end"?

How may the users be involved at all stages? Audio-visual aids and methods can be rejected or ignored for wrong reasons as well as right ones. It is therefore essential that the training of trainers is so important, in order that, whether simple or sophisticated, audio-visual aids achieve their aim of enhancing the learning, at the right place, in the best way, at the best cost and with the best benefits.

The author is senior training adviser, Training Services Agency.

## Enlightened sponsorship still needed

Alec Hughes

The precedent set long since by the Empire Marketing Board in showing that large organizations could sponsor films on subjects of direct or indirect relevance to their commercial interests has produced a rich harvest of material acceptable to audiences of all types.

It is a field in which Britain has long been pre-eminent, from the days of "Night Mail" or "North Sea" (as early classic documentaries) or "Transfer of Power" as the successful presentation of a technical subject only recently replaced with a new production whilst still enjoying wide popularity.

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Watching Nexus News in the foyer of University House, University of East Anglia.

## A mirror of university life—on TV

Malcolm Freegard

During the last 10 years, the university newspaper has acquired an ally—some would say a rival—in the form of television. Something like a third of Britain's universities now have television services run by their students.

NASTA, the somewhat unappealing acronym for the National Student Television Association, started in 1968 and has had as many as 32 members, though not all at the same time.

The television services established in a number of universities in the mid-1960s following the Brynmor Jones Report were not intended to be used by students to make their own programmes. It would have been unrealistic, though, not to expect them to cause some stir on the well-equipped studios they walked past every day.

At East Anglia the student television society, Nexus, was started in 1970 by the staff of the Audio-Visual Centre as a measure of self-protection against the storm of spiralling gentleness arriving daily with requests to "borrow camera" for the production of the ultimate documentary about "Life, Sex, the Truth", or whichever of the larger abstractions was currently claiming their attention.

Nexus drew its first members from the University Film Unit which had for some time been in indifferent health, and they provided a useful filter for ideas. The studio was made available for one evening a week, when technical supervision and production training were provided by AVC staff, several of whom had wide broadcasting experience. The resulting programmes were viewed in a large lecture theatre by means of eight monitors.

It seems that each new generation of student producers must learn by repeating the mistakes made by its predecessors. This means that a large part of the output of Nexus never rises above mediocrity. To be fair, though, the best is very good indeed, and for the past two years a measure of continuity has been provided by an exceptionally talented and enthusiastic postgraduate student.

Surprisingly, few students seem to regard experience gained in Nexus as the entrée to a career in television. For the majority, it is a stimulating and interesting alternative to more conventional pursuits.

NASTA's constituent societies are asked to see in the association's register, what they see as their basic function. Nexus is of record as believing, with uncharacteristic dullness, that it exists to provide "service to the union". In fact it mirrors the University of East Anglia, a good deal more widely than this would suggest.

Brunel University, on the other hand, offers a more attractive—and probably more accurate—view of the reason d'être. It exists, so it claims, "to entertain, inform, educate a service of news, information and entertainment five days a week to our students in University House". It also makes extensive use of mobile equipment, including the Audio-Visual Centre's two-camera

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Bringing the country to life

Brian Hill

A substantial proportion of the commitment of the BBC and ITV companies to educational broadcasting is devoted to the teaching of foreign languages. This year, for instance, there are nearly 30 series being broadcast on radio and television ranging from five-day intensive courses for absolute beginners to weekly programmes for sixth formers. For some series, audiences in excess of 100,000 are normal.

In spite of a considerable investment in time, money, talent and brow mopping, little detailed research had been attempted until recently. Feedback from learners and teachers alike was an insubstantial base for decision making and reports from the companies' own officers were, of necessity, concentrated on obtaining an overview. Answers were urgently needed to some fundamental questions.

Further education courses, it was important to know who was learning, for what purpose, with what success and in what way. For schools broadcasts it was necessary to understand more about how teachers used series, with what frequency for what purpose and with what success. It was also felt that not enough was known about the potential of broadcast media and, in particular, of the interconnections between radio and television in mixed-media courses.

Three years ago, in an attempt to shed some light on these areas the Language Teaching Research Unit at Brighton Polytechnic started a number of investigations supported by the BBC, the IBA and the West German government.

During the first stage, enquiries were focused on the beginners and intermediate German course "Kontakte" and the French series "Le Nouvel Arrivé". In each case however, the object was to generate as much information as possible which was "media-based" rather than narrowly related to the specific courses.

The method employed was to conduct a national, large scale enquiry to establish contextual statistical data and to back this up with a number of intensive probes

using specially constructed tests, detailed observation and structured interviews.

The audience for the further education series presented some surprises. As might have been expected of the further education education was high, with approximately half having completed full-time higher education. Other factors, however, were not foreseen: 80 per cent of the audience had already spent a considerable amount of time learning a language and very few were "pure" beginners, with a quarter actually having followed a previous "intermediate" German course on TV.

The profile established was of an audience with a clear interest in German and Germany, "dubbling" for non-vocational reasons, rather than of beginners firmly committed to any specific need.

There was considerable support from various sources for the concept of a multi-media course for language learning, even though the media used in their previous work experienced grammar-translation rather than audio-visual or audio-lingual teaching techniques. Tests showed that the majority of those who remained with the course made relatively good progress in the main skills of listening, reading and speaking.

The series had been conceived as a three-year progressive course, but a somewhat disconcerting result was that only 17 per cent of learners were still following the programme at the end of year "two". There was, however, some consolation in evidence which suggested that "drop-out" was provoked by personal factors, rather



Mouth-to-mouth resuscitation: an illustration from one of the BBC French language series Ensemble for further education.

than by deficiencies in the course, since the average learner was only willing or able to discontinue viewing and studying.

The BBC helped to organize evening classes linked to the main courses in several hundred institutions in the United Kingdom and just under 40 per cent of the audience were involved in the media concept and saw broadcasts as being particularly valuable in "bringing the country to life" and providing variety of impact.

The classroom exploitation of such the same use for television in schools. Teachers were not using the media for language material, but for reasons of motivation, experience and stimulation.

The research clearly suggests that the teacher rather than the medium is the single most crucial factor in success. Although possible to quantify at this stage the attitude of the teacher appeared decisive.

Certain aspects of the investigations during the first three years proved less profitable than had been hoped, but a considerable body of useful information was generated, some of which had already been instrumental in shaping future policy.

Last September a second investigation was set up, dealing with the primary field, outlined above. It was decided that more attention should be focused on the problem of "drop-out" further education courses.

A detailed analysis of the reasons for giving up is now underway and it is expected that a number of experimental systems, such as self-study tutor telephones and residential courses will be designed.

The need to understand more of the complex interconnections between educational broadcast and the teaching situation has prompted the development of another related area. The importance of teacher expectation, of teacher and student attitudes will be observed with the aim of identifying the most effective use of more efficient use of material.

The whole area of research is highly complex and attention must be exercised in the presentation of results, particularly separating course-based and media-based elements and in their achievement.

The author is in charge of Language Teaching Research at Brighton Polytechnic.

When to ask the right question

Tim Long

The National Audio Visual Aids Centre as part of its many services to education has a training department engaged in training teachers and lecturers in the many aspects of deploying and producing materials for their work. Not that we see many of what one might term the "traditional teacher". This is a pity and when we do, we feel some satisfaction when a former "doubter" returns home convinced.

"Educational Technology is the answer," proclaimed the label badges at last year's NAVA conferences in the United States, but underlined in smaller type was "but what was the question?" Perhaps we do not ask this question often enough.

The demand is, mainly for skills training in the production of audio visual material whether it be for the overhead projector still seen by many as innovation in the classroom, or tape-slide and closed circuit television.

However, we see our job as one which questions the use of media and relate it to appropriate methods of instruction by installing the principles of systems thinking into the planning stages. Perhaps because of our name or reputation people turn to us for advice on all aspects of audio-visual aids, equipment production methods, supplies of materials and resource planning in schools.

work seem relevant only to our diploma course students who attend 14 short courses at the centre spread usually over a period of two years while completing the diploma submission in their own time.

The constraints are those faced by all part-time courses. They place a relatively heavy and time-consuming burden on a member particularly when, as is often the case, he has a post of responsibility within a school or college. Because of this and since the main aim of the course is to foster producers of learning packages and their successful administration, all work done for submission is seen to have direct relevance to the candidate's teaching. This possibly accounts for the relatively low drop-out rate on such a course.

The department offers a programme of about 20 different course titles a year and most of these are repeated at least twice, giving a course load of nearly one a week.

The centre is open throughout the year, and courses are available during the holiday periods. In the past the response to these has been poor, especially, but perhaps not surprisingly during August. However, the present difficulties of obtaining even a day away from college during term time may mean that your vacation courses will now be welcomed.

The progress of technology has been rapid over the past 10 to 15 years and we are exploring new methods for presentation, information retrieval and dissemination.

All our time could be spent in satisfying the basic information needs of our clients. But the centre has a function not just to facilitate information but to promote understanding. It is the most intimate knowledge of AV equipment will not guarantee successful use

of the production of creative and innovative learning materials. The problem is that you can learn very much about the operation of AV methods without producing them first. It is attempts will often not be good, but at least they will be taught you the procedures, the weaknesses in the presentation material. From "practical work" the student is able to gain an appreciation of educational technology theory and its application.

Courses are usually held for three or four days with a few, like CO or AVA production, lasting one week. Obviously this means that the time is limited to cover the subjects offered in depth, but we are aware of the need to provide more than competence in what they achieve and more than even they expect by the end of their intensive study.

Another advantage is that a mix of students from LEA, FE and HE social services and industry training provides an additional stimulus to the course. Naturally, the main subjects such as the production of Media in FE, College and HE are more homogeneous and attract a much more homogeneous group but these are likely to include lecturers from overseas on the tours organized by the Department.

The practical and economic applications of resources are fundamental to educational technology. Whatever pressures and indulgence in grandiose and complex schemes which are directly followed the production of educational technology should quietly but firmly resist.

The author is head of the Training Department of NAVAC.



Towards a chair in radio drama

Ian Rodger

The Radio Literature Conference held last week at Durham University has led me to reflect on some current approaches in the teaching of English in universities.

I organized this conference because it seemed to me that writing for radio has been shamefully neglected by critics and scholars who proclaim an interest in contemporary literature and drama.

The hard fact is that since 1923, when Richard Hughes wrote *Danger*, the world's first radio play, British writers have churned out 40,000 scripts which are now lying, largely unattended, in BBC archives.

This neglect is not so common abroad. When I first conceived the conference, I learnt that a team of scholars of English in Germany, headed by Professor Dr Horst Prinsler of Wuppertal, was engaged in compiling a critical study of the work of some 25 British radio writers.

The Germans, like other scholars abroad, have recognized that British writers have made a significant contribution to writing in this new form and that radio writing has considerably influenced dramatic style and structure in the theatre, dialogue in the novel and styles in poetry.

They have realized that the writer today makes use of all the forms of expression available and those who may be better known as novelists or theatre playwrights sometimes gain both a part of their work in other forms like radio, television and film.

In Britain there seems to be reluctance on the part of English scholars to study work in these diverse disciplines. They seem to have an inherent distaste for it or cultivate a deliberate ignorance of it.

The late Cyril Connolly typified this attitude for me when, in his *Diary*, he wrote of Louis MacNeice, the poet, that the author of *The Work Tamer* and *Persons From Poros* had wasted so much of his talent on radio instead of concentrating on poetry.

When I began canvassing for the chair or two in radio literature, I knew that such views existed and though I have met a few in Britain whose minds are not

closed to the merits of radio writing, I have been amazed and even alarmed by the extent of existing prejudice.

A great number of scholars refused to give the subject any thought at all. There was, for example, a Professor of drama who wrote, as if gathering his skirts for fear of intellectual rape, that "radio would never, ever, be studied" in his department.

I was left wondering how his students could study the classic repertoire without listening to radio adaptations or come to any understanding of the work of people like Samuel Beckett, Harold Pinter or Brecht without knowledge of their radio genesis.

This kind of reply was at least forthright. More devious was the polite response of those who seemed momentarily trapped by my invitations and who then brightened as they deflected me outside English literature. They would suggest the audio-visual aids section, the students' film society, somebody in sociology or communications studies and, even on one occasion, another university where there was a department studying tape recordings of dialects.

Sometimes I was directed to a nice Mr or Mrs Blank, who was teaching BRD students how to use tape recorders. It was I think fairly usual that I was an escapee from some media studies outfit masterminded by dangerous people like journalists and ex-television producers.

At the heart of this prejudice there seems to lie an assumption that writing for radio, television or film is not literary. Due to an ignorance of the literary work involved in television and film and the assumption that they are mainly visual acts of creation, these forms have been denied study by scholars.

But forgiving this ignorance as far as television is concerned, it is baffling to find scholars disinterested in radio. They have been using it now for more than 50 years and I cannot see how they and literary historians are going to be able to understand the complex mechanisms of British literary life since 1923 if they continue their neglect of writing in radio and television.

There are now about 39,000 scripts awaiting study. The Germans, to their credit, have started work on the first of these and their predecessors who pioneered Beovulf studies they are showing the way but this study ought not to be left to people who do not inhabit the language.

I can only end by moving that we establish within reasonable time a chair or two in radio literature. This study must of course form an integral part of English studies. It must not be contained within some new freak department out of sight and sound of those who seem to want to deny that we inhabit a living language.

The author organized the first Radio Literature Conference held at Durham University last week.

Easing study of broadcast drama

Charles Chadwyck-Healey

Until the publication of the BBC drama catalogues it was easier to discover what plays were staged in London in the 1650s than it was to track down the drama transmitted on radio and television in the 1950s. Even the Victorian music hall has been better served by reference works than radio and television.

Up till now the main source of information has been *The Radio Times*. This is fine providing you know the date of transmission of the play in which you are interested but there is no author or title index. It is also not totally reliable as a record of what has been transmitted since it is published ahead of the programmes.

Chadwyck-Healey Ltd has now published on microfiche the BBC's own card catalogues of drama, poetry and features transmitted on radio and television from the

beginning of radio in 1923 and television in 1936. There are separate catalogues for radio and television and each is divided into two parts, authors and titles.

It is only by browsing through the catalogues that one gains a conception of the sheer size and variety of the BBC output over the last 50 years. Through the catalogues one can begin to glimpse the evolution of broadcasting over the years, the dominance of certain playwrights and certain genres at different periods. They reflect the tastes and interests of a mass audience, which in 1955 still included 10 million people a week who listened to radio drama, at a time when television was already in ascendancy and cinema audiences in decline.

Asa Briggs has written, "Not only does current drama reveal an age through its attempt to escape as much as through its involvement, but the choice of the drama of previous generations is almost equally revealing". The catalogues give interesting information about the production of plays of important contemporary authors. One entry shows that the text of Beckett's *En attendant Godot* was first considered by the BBC in March 1953, but that the first transmission of *Waiting for Godot* was not until April 1960.

Precise details of dates and lengths of transmissions are given together with the names of translators. There is extensive cross referencing valuable for leading to other relevant programmes including talks about plays and interviews with authors. The title catalogues also include a brief

resumé of each title and in many cases the results of audience research surveys giving an index of audience appreciation in relation to a norm for that slot. Many authors now considered important had their early, perhaps now forgotten, plays transmitted by the BBC, and through the catalogues information about these productions can be found. The catalogues are also useful for answering general questions: What was the first Pinter play to be transmitted and when? What year was the famous television production of *Nineteen eighty-four*?

Few tapes of plays survive but these are not catalogues of inaccessible material; the BBC Play Library have the scripts which may be read by researchers on payment of a small fee and photocopies are available provided that permission is obtained from the copyright holders. The catalogues consist of 51,000 cards on 119 microfiche. They can be bought separately and each catalogue which is updated annually is housed in a plastic box accompanied by printed instructions.

An essential part of any systematic study of the cultural and social influence of radio and television must be an accurate and comprehensive catalogue of transmissions and now that these are available I believe that they will do much to encourage and facilitate the study of radio and television drama.

A further important addition to these catalogues will be an author and title catalogue of the independent television companies.

The author is director of Chadwyck-Healey Ltd.

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continued from page 1

designed for individualized presentations, the Sentinel 16 for small group viewing and the Tutor 16 for larger audiences. These come together with the Axi Comlink 16 cartridge software.

Marker Board Supplies Co.—(102) The company manufactures and will have on display a large range of writing, display and planning boards. One particular item on show for the first time is an improved model of their lightweight portable magnetic board, designed to fill a gap in the market following requests for a multipurpose unit.

National Sound Reproducers Ltd.—(63 and 73) NSR Ltd are agents for a range of Audio-Visual Laboratories Inc's products. The latest, the new multi-tape computer programme Show PRO will be screened at the exhibition. The Show is claimed to be a totally new concept in multi-image programming systems—all dissolves and program operations are built into a single computer controlled package.

Nobo Visual Aids Ltd.—(9) Nobo will be showing a full range of display lecturing and teaching aids including an updated version of their popular portable Elipchart Kase, double sided mobile lecturer whiteboard, which can be used with Drymarker Pens one side and chalk on the reverse.

North East Audio Ltd.—(94) NEAL now produce a full range of cassette recorders to meet all requirements. For example the 102 has become the standard cassette recorder for many organizations and extra facilities such as three input mixing and the exclusive Varitape feature make the 103 machine suitable for truly professional applications.

Plemaglen Audio Visual—(64) Plemaglen are the sole importers and distributors of SIMDA audio visual equipment. Among the new products being shown, the most important is the AV750 near projection cabinet incorporating dissolve projection and sound replayed from the new LC30 cartridge replay unit. By adding a timer to the control equipment, programmes can be started automatically.

Rank Audio Visual Ltd.—(75) Two new 16mm projectors in the Rank Aids and Slinger ranges will be on show for the first time in the United Kingdom. The Rank Aids series 254 projector provides the option of manual or automatic loading. It has a single multi-purpose control giving forward and reverse running with reduced or full light intensity. Full picture steadiness is said to be ensured by using a four tooth claw, while to safeguard the film, if a splice should break during projection, the projector switches off automatically. There are four models in this range.

Reachi-Tescha Ltd.—(1) The company produce and sell cassette programmes linked to student workbooks in secretarial skills and recently have been commissioned to produce a programme linked to McGraw Hill's "Typing First Course" by Drummond and Scot-

terpond. There are several other programmes including 25 programmes in grammar and supervisory subjects available. Sound & Vision Communications SVC will be showing the Wollensak 255 AV luxury duty cassette recorder made by JM. The cassette recorder linked to a projector becomes an AV recorder and can also be the basis of a more complicated tape/slide presentation using a number of projectors and dissolve units.

Swan-Stahilo Ltd.—(31) Swan-Stahilo will be showing their range of special pens and markers for use on OHP transparencies and on other OHP materials. The range offers fine-line, medium-line and broad items individually or in many wallet sets. New items on show will be the STABLO plan "Dry Wipe" markers for use on anodized aluminium whiteboards and Swan STABLO plastic eraser for OHP transparencies.

Training Films International Ltd.—(104) The company distributes training films specializing in management, supervisory and safety subjects. Particularly topical is the Henley Centre for Forecasting's Path to Prosperity film produced by Cygne Guild Communications aimed at managers and workers. Using animated diagrams the film illustrates the proportion of value added ploughed back into investment to expand and raise living standards. The film is now being offered free to colleges, universities and schools as a result of a 100 per cent grant from the Comins Foundation.

Unchart Ltd.—(84) The company designs, manufactures and supplies teaching planning and organizational aids to education, commerce and industry. The products provided include whiteboards, chalkboards, dry boards, notecardboard, easel boards, composites, sliding frame units, mobiles, portable and desk top units, planning boards and maps and year planners.

Unico Engineering—(11) Unico manufacture trolleys, stands, platforms and wall brackets for television and video systems. On display are two products especially developed to fulfil the needs of AV users in higher education for equipment of high professional standard which is robust and adaptable. One is the VS1000 mobile unit which will carry a complete video system including a VHS video recorder, and other equipment.

Visual Mar-Cora Systems Ltd.—(9) Mar-Cora will be showing a range of Bell and Howell 16mm sound projectors. The 1111 projector is the 35mm slide projector and film Sound 35 ranges. Kodak Carousel slide and dissolve systems. Dunlop Westray overhead projectors and 3M Wollensak cassette recorders and duplicators. Among new items will be the Bell and Howell 35mm slide self screen sound projector intended for the education and training market.

Wilson & Garden Ltd.—(43) The company will be exhibiting various models of their "Unique" revolving surface writing boards, fixed wallboards and dry marker boards. One of the largest "Unique" revolving surface writing boards can be seen in the lecture theatre of the Physics laboratory at Oxford University for which it was specially designed.

Diana Wylie Ltd.—(13) This year Diana Wylie Ltd will be showing their increasing range of DV viewpacks. The DV ring-binder system first launched last year, now encompasses five new DV viewpacks. Specially interesting is the new cassette page which fits the DV ring-binder system. This which allows four cassette tapes to be filed and transported easily and efficiently all in the one binder. The DV viewpack/FS is a new product designed to solve the problems of storing and issuing multi-media aids.

Zoom Television Ltd.—(21) Zoom will not be showing many new items this year, among the most recent are the Hitachi FP 3030 colour television camera, Nordmende CCS Telecine Unit and Philips N1502 video cassette recorder. Other products include Sony equipment and Zoom MZM1 6-channel audio mixer. In addition the company will be showing examples of video programmes made in their London studio.

## Helping hand you know makes sense

Jenny Smith

The student intake in your department has doubled this year. The first new lecture theatre that would have held them all comfortably has been indefinitely postponed. To cap it all, two of your best teachers are due to leave at the end of June. It is a story that hardly bears repetition, yet echoes in the halls of academe every day.

If you have resisted "visual aids" before, perhaps you feel that now your hand is forced, and you must wade willy-nilly into the seeming intricacies of video, film, and tape-slides.

The proposition makes sense: there are ways of recording those lectures before their authors leave; audio lectures are basic course units, experiments, replayable any time, any place, to any number of students—provided that you have the equipment.

And here the bubble bursts, or seems to. Not every department has access to videotape playback facilities, or even that most venerable of AV tools, the cine projector. Not everyone has an audio-visual unit waiting to cope with the crisis and make their recordings for them. Dazzled by the prospect of movies and the printing cost of beta-cassettes, where do you turn?

The answer for some will be sound recordings (if pictures are not vital), tape-slide programmes (where still pictures in colour are as important as the sound), and tape-book programmes.

My introduction to tape-book programmes came a few years ago when I was a designer-illustrator and spent my time making TV graphics. My director was wrenched by the department's obstetrics and gynaecology at St Thomas' Hospital with a startling new idea.

They needed an inexpensive way of freeing their teachers from the repetitive grind of basic obstetrics and gynaecology courses, so that more time could be spent with the students on tutorial and ward rounds.

They wanted programmes that could be used by their students with the minimum of fuss, so that in the hospital, sometimes at

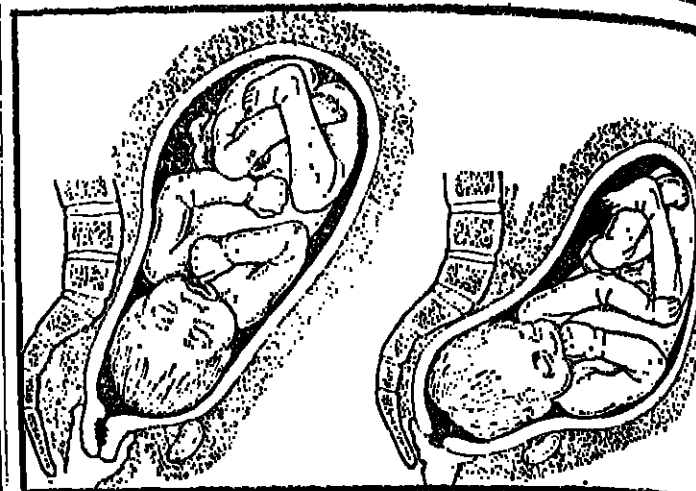


Illustration from the book Basic Obstetrics 1, left, onset of labour; fully taken up cervix.

The idea was to provide a specially-designed book, with graphic illustrations and notes to accompany sound recordings made by the teaching staff.

With the sound recordings made available on audiocassettes, and the book a personal possession, each student could either use the cassettes in the AV laboratory, or borrow them if he did not own a cassette recorder, the student could also borrow a cheap replay-only machine from the hospital and take it home.

Possibilities opened up of listening to the professor's discourse on records and books at the drawing table in the bath. A further refinement in the design of the book would be to spirally-bind it, so it would lie flat in use, with the illustrations and notes on the left-hand page, and the right-hand page left blank for the student's own notes.

All this agreed, we set about making the programmes. It was my first experience of real production, and I enjoyed it.

A doctor would arrive each week with his script, and little scraps of paper which would turn out to be sketches of the proposed artwork. Together we would try to interpret these, with the help of the stand-up reference books if necessary, then the doctor would make his recording, usually in great haste to return to the delivery room or to attend clinic. This was followed by a period of making the illustra-

tions, editing the tapes, and the notes to go in the book. The printing process for the book was often laborious. The graphic method of producing quantities of print where drawings or sketches are needed, it only works cheaply with black and white artwork—no grey halftones.

Although photographs coloured inks can be printed in economy we stuck to drawings in Indian ink, with the exception of a few illustrations (clear black type is essential with headings in Lettera).

The printing cost of beta-cassettes worked out at about 12p per copy, on a print-run of 400 copies for that the student got 68 pages diagrams and notes (plus the corresponding blank pages). The tapes were copied from the original master onto one of the CGO cassettes; total cost, 60p.

Perhaps it was not such a brilliant idea, but the system has advantages. For example, the student can keep a permanent record of the programmes as he hands back the tapes, kept as fast as or as slowly through the programme as he likes, and to earlier points on the tape, if need be.

Judging by the reactions of students who have used the tapes, it was a good idea. Many will come back to the tapes, while some to the introductory chapters when the exams are upon them.

The author is a producer at University of London Audio Centre.

## When a study is not a discipline

Nicholas Garnham

The area of academic activity described as communications studies is in confusion. This is hardly surprising since communication studies is not a discipline. It is not a subject which could be taught at a rate of 10 per cent per annum. Today over 53 per cent of the US wage bill goes to information workers.

The relationship of "communication studies" to the wider social movement raises two issues, vocationalism and politics. There is to say, particularly at the art school and of communications studies spectrum, in what was once graphic design, now reduced to a direct response to growing job opportunities.

All communications studies courses make some claims for their relevance to a growing social need for information workers.

The trouble, however, is that society, or rather employers, of information workers do not seem to recognize the need which higher education is rushing to satisfy. Indeed, in the main stream of the mass media there would appear to be active resistance to such developments.

This tradition dangerously blurs the technology of the life, the sciences and the humanities with their desire for a world in which everyone needs his or her own video-freak.

Deeply influenced by the academic tradition in the field, school finds no problems in the acquisition of workers, who, nationally at any rate, "solve" any communication problem thrown at them. It is a school that at present dominates syllabus communication studies.

In a world in which the structure has become the content, the school sees the structure of information processing and control as politically correct. It is this school that emphasizes media studies as a more focused area of research, sees practice as an important part of the curriculum, and has a direct response to vocationalism, but whose media education is a political statement.

Given the background I am optimistic about developments in the field. Communications studies will founder unless it can find a niche leaving a significant intellectual and vocational contribution, and for this reason of academic tradition, the field is in a state of flux. The English literature tradition, which has been traditionally the path for the student, is being replaced by a more vocational approach which sees society, as in non-classical economics, as a system resting upon the assumption of perfect knowledge within which it is the job of the specialist to regulate and, if possible, increase, and, in so doing, to identify and clear communication blocks.

The author is a producer at University of London Audio Centre.

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# The new horizons of particle physics

The aim of high energy physics is to understand the fundamental nature of matter in terms of particles and the fields of force produced by their interactions.

Particles are conceived simply as points endowed with properties such as mass, electric charge, and spin, together with a number of new properties that only reveal themselves in matter of atomic dimensions or less; the later properties are known as parity, isospin, baryon and lepton numbers, hypercharge and, very recently defined, its position, velocity and these intrinsic properties.

In contrast, to define a "field" we need to specify a set of numbers at every point of space, as well as properties such as energy, momentum, and angular momentum which may also be associated with the point.

The motion of particles is represented by the laws of quantum mechanics. On the macroscopic scale these reduce to the familiar Newton's laws. At the atomic scale, however, they reveal a far richer content than anything Newton could have imagined. Indeed these laws of quantum mechanics—taken together with Coulomb's law of electrostatic interaction between charged particles, and a model of the atom in which a cloud of negatively charged electrons is pictured as moving around a positively charged, more massive nucleus—have led to a full, detailed and quantitative interpretation of the properties of atoms, the light they emit when they are in "excited" states, and the way in which they combine with other atoms to produce the molecules of chemistry.

The quantum theory envisages that a field can also exist in excited states of definite energy. When energy (E) and momentum (p) are transferred from an electron to the electromagnetic field, the latter is set in vibration with frequency  $\nu$  such that  $E=h\nu$  where h is a constant of nature, called Planck's constant. At the same time the amount of momentum transferred is  $p=h\nu/c$  where c is the velocity of light. We see that  $E=pc$ .

According to Einstein's theory of special relativity  $E^2=p^2c^2+m^2c^4$ , where m is the rest mass of the body. The relation  $E=pc$  clearly applies for a particle with  $m=0$ .

The picture of two electrons interacting through the mechanism of the quantized electromagnetic field is therefore just what would be expected if a particle of zero rest mass were emitted from one electron and absorbed by the other electron (Figure 1). The transferred particle, which has come to be known as the photon, is referred to as the "quantum" of the electromagnetic field.

A single moving electron surrounded by its electromagnetic field is pictured as continually emitting and reabsorbing photons. Sometimes these "virtual" photons can even materialize into electron-positron pairs, but these soon dissolve again into photons before being reabsorbed by the parent electron. The electron must extend over a region of space corresponding to the distance these "virtual" photons, etc, can reach during their fleeting life.

The "self-energy" of an electron due to its interaction with its own electromagnetic field turns out to be infinite. This infinity can be removed in a rational way by the procedure known as "renormalization" so that these predictions for electromagnetic processes can be predicted. The accuracy of these predictions is extremely high; the value of the magnetic moment of the electron, for example, is predicted to be 1.836151673 magnetons compared with the measured value of 1.0011596577 magnetons!

In 1926, when I began studying physics at Melbourne University, there were three known particles—namely, protons, electrons, and photons—and two known interactions, gravity and electromagnetism. Today only two more interactions are definitely established, the strong (nuclear) interaction and the weak interaction, responsible for beta radioactivity. But the number of particles has

rocketed, and the total number of particles and their associated antiparticles is today not far short of 200.

One family of particles, known as baryons, includes the neutron and proton. The neutron and protons must be held together in the nucleus by a powerful attraction. Since the neutron carries no electric charge, this force cannot be electromagnetic in origin. It has come to be known as the strong interaction. Unlike the electromagnetic interaction, it has a very short range. While it is very strong at a separation of a thousandth-billionth of a metre, it has fallen almost to zero at a separation of a hundred-billionth.

The strong-interaction field can be "quantized" in a similar way to the electromagnetic field, the quantum in this case having a finite rest mass,  $m=\frac{1}{2} \times 10^{-27}$  kg, related to the range of the interaction, and the quanta carry a positive or negative charge (equal in magnitude to the electron charge) or it can be uncharged. The discovery in 1947 of a particle, the pi-meson, with the mass and properties predicted was a most significant achievement.

Exactly the relation between particle and hypercharge. The basic meson multiplet is shown with hypercharge, Y, plotted against the difference between the charge and the mean electric charge (equal to half the hypercharge, X) for a charge multiplet such as, for example, negative, neutral and positive pions.

The proton and neutron are the lightest baryons. Similarly, the quarks are the lightest members of a family of particles called mesons. In both cases the various particles in the family differ not only in mass, but also in electric charge and in another property called hypercharge.

The photon is the quantum of the electromagnetic field, but since it is uncharged, it cannot interact directly with the quarks. On the other hand, it is not only the quantum of the strong interaction field, but interacts strongly with the field.

The weak-interaction field, responsible for beta-decay, can also be quantized. The quantum, called the W-particle, is expected to be very similar to the photon, but with a mass and an intrinsic spin of 1. All the well-known weak-interaction decay processes can be interpreted as being moderated by electrically charged W-particles. They are called charged current processes.

Then intense neutrino beams became available from the CERN laboratory, neutrino interactions with protons and neutrons moderated by both charged and neutral W-particles, were observed. The surprising implications of this discovery are discussed below.

Particles such as baryons and mesons that "see" the strong interaction are called hadrons. The relationship of baryons and mesons to the strong interaction, but not the strong interaction are called leptons. The leptons, however, cannot see the strong interaction, although, if charged, they can interact electromagnetically. The photon is related only to the electromagnetic field.

One important aspect of modern particle physics is that it reveals the great significance of symmetry properties in nature, and their relation to invariance principles and conservation laws. These relations are also known in classical physics, for example, the impossibility of distinguishing an absolute position in space implies invariance of the laws of nature against space translation of the co-ordinate system, and therefore the conservation of momentum. The immeasurability of absolute time implies the conservation of energy, and that absolute direction in space implies the conservation of angular momentum.

In particle physics, the invariance of the laws of nature under another type of transformation—called a "gauge" transformation—leads to conservation laws. The electric charge, and for the total number of baryons and leptons in a system. These symmetries are all exact. Other symmetries, however, lead to conservation laws that hold in some types of interaction but are violated in others; for example, parity—related to the indistinguishability of left and right—was broken in strong interactions, but not in weak, so that the weak interaction can distinguish between left and right.

The strong interaction exhibits another type of symmetry. The hadrons form charge multiplets. For example the proton and neutron can be thought of as two charge states of the same particle, the nucleon (charge), and for the total number of baryons the pi-meson can be considered as being positively or negatively charged, or in a neutral state. The hadrons also carry the property known as hypercharge and if their charge and hypercharge are plotted in two dimensions they group themselves into "supermultiplets" (Figure 2) and octets (octets) for the mesons (Figure 2) and octets, and groups of 10 (decuplets) for the baryons.

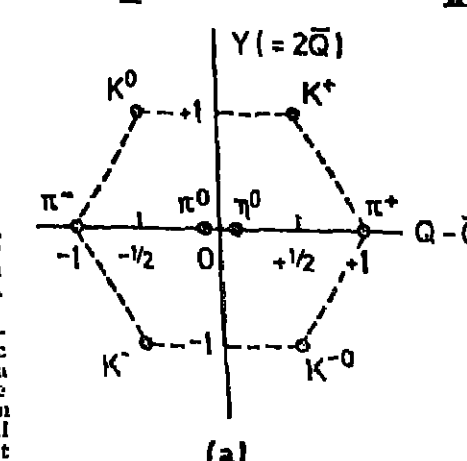


Figure 2. The classification of hadrons into two-dimensional multiplets of charge and hypercharge. The basic meson multiplet is shown with hypercharge, Y, plotted against the difference between the charge and the mean electric charge (equal to half the hypercharge, X) for a charge multiplet such as, for example, negative, neutral and positive pions.

The particles in any of these supermultiplets can be transformed into each other by rotating the diagram relating charge and hypercharge through 120 degrees. Their properties are exactly those required for a system that is invariant under transformations of the SU3 group, well known in the branch of mathematics known as group theory. The symmetry, however, is only approximate, being broken by the different charge and hypercharge of the members of a supermultiplet, these giving rise to mass differences between members of the multiplet.

The grouping of the hadrons into such supermultiplets is just what would be expected if they are built from three simpler entities known as quarks, together with their antiparticles, three antiquarks. The baryons are formed from three quarks, the mesons from a quark and an antiquark. Despite many attempts to find these quarks have never been observed directly; nevertheless the evidence for their existence is very strong.

The baryons and mesons are not really fundamental particles—only the quarks are fundamental. The relationship of baryons and mesons to the strong interaction, but not the strong interaction are called leptons. The leptons, however, cannot see the strong interaction, although, if charged, they can interact electromagnetically. The photon is related only to the electromagnetic field.

The strong interaction between quarks varies with their separation in an unfamiliar way. If the quarks are close together they behave like free particles so that, for example, electron or neutrino collisions with nucleons can be interpreted in terms of collisions with free quarks inside the nucleons. When the quarks try to separate, however, they are constrained by a very strong force, just as though they were tied together with string.

Perhaps one of the most important developments of recent years has been the realization of the deep significance of gauge fields for particle physics. These fields take account of the invariance under so-called "gauge transformations" of the properties of the field at each point in space, and also impose conditions that ensure that these properties link up in a consistent way between one region of the field and another. This ensures that the same laws apply everywhere throughout space-time—the uniformity of nature.

The electromagnetic field is a gauge field of a special kind (Abelian). Its quantum has zero mass, and does not feel its own interaction with the field. Theoretical physicists became interested in gauge fields 25 years ago, but it seemed that when "quantized", their quanta were massless. We know of only one massless quantum in nature, the photon. How could one then account for the massive quanta like the mesons and W-particles required for both strong and weak interactions?

The decisive breakthrough came in the early 1960s when Peter Higgs showed how gauge theories could be formulated in such a way as to endow all but one of their quanta with mass. Building on the earlier work of the late Swedish physicist Sven Weiberg in the mid 1960s proposed a gauge theory whose quanta consisted of four particles—three of them (positively or negatively charged, or neutral W-particles) were very massive (at least 40 times

the proton mass); the other was massless. It was natural to identify the massless quantum as the photon. The positively or negatively charged W-particles could be identified as the heavy quanta required to moderate the usual charged current weak interactions. In other words Weiberg had succeeded in unifying two of the fundamental interactions, the weak and electromagnetic fields.

The neutral W-particle (W<sup>0</sup>), inextricably linked with the others, leads to the prediction of weak-interaction processes in which the charges of the interacting particles do not change (known as neutral current processes), a prediction that was initially confirmed in the study of neutrino interactions using the "Gargamelle" bubble chamber at the European Centre for Nuclear Research in Geneva.

There is strong experimental evidence that such weak neutral current processes involving W<sup>0</sup> only occur when there is no change of the total hypercharge of the hadrons involved in the interaction. This can be understood if one postulates the existence of a fourth type of quark carrying a new intrinsic property known as "charm". The existence of mesons and baryons carrying such a quark has been strikingly confirmed during the past few years in several different types of experiments.

At present therefore the fundamental particles of physics can be reduced to the four leptons (the electron, muon, and two types of neutrinos) and four quarks, each of which is believed to turn up in three "colours". In addition there are the four quanta of the unified weak and electromagnetic fields described above. The strong interaction field between the "coloured" quarks is also envisaged as a gauge field which, like the Weinberg gauge field, is of the so-called non-Abelian type. This means that the quanta (called "gluons" in the case of the coloured quark field) themselves interact with the field.

At present there is great excitement and interest in particle physics. The unification of the weak and electromagnetic fields through the Weinberg-Salam gauge field, and the demonstration by the brilliant young Dutch physicist 't Hooft of how such theories can be "renormalized" to give meaningful quantitative results for comparison with experiment, is inspiring a feverish search for a gauge theory that will include the strong interaction as well. We seem to be on the threshold of something great and significant, reminiscent of the early 1920s immediately prior to the discovery of quantum mechanics.

The author is professor of physics at University College London.

What is the next step? Does our investigation of the ultimate nature of matter stop with the quark? Are the quarks themselves composed of other entities of an even deeper level? And if so how are we to get at them if the quarks can never escape being confined within baryons or mesons?

Nearly 20 years ago physicists were speculating that it might be possible to obtain a theory that folded in on itself (the "bootstrap") and did not require a deeper substratum to interpret the known particles. Thus a proton would be a combination of pi and K mesons, baryons, etc. a pi-meson would be a combination of other pi and K mesons, baryons and anti-baryons, and so on. One could then hope to obtain a set of interdependent self-consistent equations which had solutions corresponding to all the particles. It seemed a very elegant possibility. Unfortunately it did not correspond to reality. Can such a concept—sometimes called "nuclear democracy"—be applied now to the quarks?

The answer to these questions will require the use of accelerators producing particles of greater energy, and involving greater cost. Already about 25 per cent of all money provided by the Science Research Council for basic scientific research in Britain goes into high energy physics. Of course this is only a small fraction of the sum spent for all scientific research and development; but it is no wonder some scientists—not to mention the Government and non-scientists—are becoming restive.

Nevertheless it would be indefensible to clamp down on this kind of research at the present time when we seem so close to a decisive breakthrough. The highly experienced research teams would disperse, and could be reassembled again only with great difficulty. The expertise could be lost to mankind.

What does the drive toward an understanding of the ultimate nature of matter mean for the human happiness of making the earth a better place for all, where man to man as brothers can cooperate in using our knowledge for the benefit of all? We cannot say. We can be sure, however, that the quest for a deeper understanding of nature will continue as long as man himself.

Eric Burhop  
The author is professor of physics at University College London.

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BOOKS

Proselytizing a socialist vision

Eleanor Marx, volume II: The Crowded Years, 1884-1893 by Yvonne Kapp



Eleanor Marx in her favourite dress of dark blue velvet.

With the completion of this second and final volume of her life of Eleanor Marx, Yvonne Kapp has made an outstanding contribution both to the story of the later years of the Marx family, and to the history of British socialism in its formative years between the early 1880s and the early 1890s.

In the 1880s the Engels household carried on the supportive role, which Eleanor's own family had formerly provided. But at the end of the decade, a tragic process of involution set in.

Helene Demuth, the old Marx family servant, and Engels's housekeeper since 1883, died just as Engels approached his seventieth birthday. Increasingly lonely through the loss of his old friends, Engels imported Kautsky's young ex-wife Louise to fill the gap left by the faithful Lenchen.

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her generation, to find an effective way of converting her socialist to a political practice. She threw her energies behind Will Thorne's Gas Workers' Union (now the NUGM), and helped to found its first female branches.

In sum, the rich materials assembled within this volume invite a more general question which Yvonne Kapp does not ask. The distinctive contours of a British socialist tradition are sketched by Kapp in her period reconstituted in the conduct of labour politics.

The evidence produced by Kapp suggests how many of these positions were in fact shared by Eleanor. She also was more concerned with making socialists than with problems of socialist strategy.

But in fact the Marx-Avellings had no more idea than anyone else how socialism might be transformed from a literary movement to a mass political practice.

Black Monck

General Monck by Maurice Ashley

Exhausted by military rule and Cromwellian anarchy, in 1660 the Convention Parliament overwhelmingly agreed the restoration of "ancient government".

It was only the most recent campaign in Monck's long political career. At 16 he joined Charles I's abortive assault on Cadix; at 59 he was general in Charles II's Dutch war.

Like Cromwell - they are mutual admirers - he is a soldier's soldier, a man of martial law, exemplary in his private life.

Monck was a "joyless" man, a forgotten name in the history of the Restoration. He was a man who was not a man.

Monck was a "joyless" man, a forgotten name in the history of the Restoration. He was a man who was not a man.

BOOKS

Importance of the accidental

The Economy of Europe in an Age of Crisis, 1600-1750 by J. de Vries

Discussing in these columns the work of a distinguished economic historian of early modern Europe, Professor Charles Wilson's *The Transformation of Europe 1550-1648* (THES, June 11, 1976), I remarked on his understanding of the nearness of events, of the crucial role of the accidental in the unfolding of European history.

Consider, for example, the case of England in the late seventeenth century when the price of grain and wool was falling and the population was stable.

A quantitative history of Europe

Commerce extérieur et développement économique de l'Europe au XIX siècle by Paul Balroch

This study of European foreign trade and industrialization in the nineteenth century, carried out with great thoroughness by Professor Balroch, illustrates the pitfalls of that type of quantitative history of which he is an adept: it proves too much.

He gives an important place to an examination of the "free trade experiment" that is, the period of freer trade and mutual lowering of tariffs by the European countries following the Anglo-French Treaty of Commerce of 1860.

eighteenth century would make England a major grain exporter providing capital for investment; and with a new rural structure freeing labourers for the towns and adequate food supplies the country was well prepared for the rapid industrialization to follow.

Another example is furnished by the rise of the large city, the metropolis, during the seventeenth century. There are a number of explanations for this phenomenon: the administrative and social expansion around centres of government like Madrid, the Hague, Versailles, the great prosperity visited upon the Atlantic ports, Hamburg, Amsterdam, Rotterdam, Bristol, the Brest, Toulon and Portsmouth.

The problem of providing heat for the cities produced in the Low Countries a pent industry in the hands of the urban capitalists. This in turn encouraged the growth of many fuel-intensive industries, sugar-refining in Amsterdam, linen-bleaching in Haarlem; and the canal network created to aid the transportation of peat also assisted the movement of Dutch agriculture.

While the statistical work is valuable in itself, Balroch has not taken a sufficient range of variables into account. This is not to say that his conclusions are necessarily unacceptable. On the contrary, it seems certain that free trade policy was an unqualified success for Britain in the 30 years after the repeal of the Corn Laws.

It is also unquestionable that whether a policy of free trade or protection will be most likely to encourage the economic growth of a country will depend upon circumstances. Whether the European countries were harmed singly and collectively by their mutual tariff lowering of the 1860s is more doubtful. British industrial production may have begun to slow down in the 1850s but this can scarcely be attributed to the repeal of the Corn Laws.

Balroch also omits to inquire into sectoral rates of growth. Professor François Crozet's Index for France shows sluggish performance in a period for older industries like textiles together with doubtful theoretical and conclusions. His bibliography contains no reference to J. A. Schumpeter, Kondratieff, the theorists of the business cycle; he displays no interest in short-term cyclical movements or the possible influence of long waves; he makes no use of the counterfactual methodology of the "new" economic historians; the possibility that the

the north-eastern coal fields developed along with a fleet of colliers, but gradually coal came to replace wood or charcoal in most industrial processes until in 1709 Abraham Darby discovered how to produce coke from coal. Seen in this light, therefore, the great European city might be said to have spawned the Industrial Revolution rather than to have been a product of it.

Professor de Vries's book contains many such thought-provoking lines of inquiry. He discusses the decline of states as well as their growth and ponders on whether an increasing rigidity in techniques and institutions is always a sign of economies in decline as it was in Vienna, Milan and Spain. His discussion of the rising or declining peasantry and bourgeoisie emphasizes the complexity of European life and the dangers of easy generalizations.

Did the successful bourgeois include those who rose into the ranks of the aristocracy? Did the successful farmer still identify with his peasant background? As for the aristocracies, were they not divided into a minority of wealthy capitalists and a poorer majority in precisely the same way as the bourgeoisie? We are made aware of the interweaving of so many separate strands that we marvel that any overall pattern can emerge and we become properly sceptical of the idea that the following age can any longer be simply labeled as that of the Industrial Revolution.

The material in this volume is clearly set out with very few printing errors and the book is equipped with a number of tables, figures and maps as well as the usual bibliographical notes. Though it is not cheap at £8.00, neither, in these inflationary times, is it especially expensive. That should assist the book towards the goal it sets that it deserves.

J. H. Shennan



CRITICAL IDIOM

General Editor: JOHN JUMP. This is a remarkable enterprise, at once ingenious and audacious. . . . It will be clear that this could have been a set of critical grammars, and it is much to the credit of the General Editor, John D. Jump, and his team that it looks like being something much more satisfying.

MODERNISM 34

PETER FAULKNER. This book sets out to provide a workable idea of Modernism as a term for use in the discussion of twentieth-century literature and culture.

MODERN VERSE DRAMA 32

ARNOLD P HINCHCLIFFE. This book provides a clear and well illustrated analysis of modern verse drama—both secular and religious—with a study of the work of its chief exponents T. S. Eliot and Christopher Fry, and its place in the development of contemporary theatre.

THE PICARESQUE 33

HARRY SIEBER. This book reviews what 'picaresque' has meant to various generations of critics and provides a critical review of the word's etymology, and out of this discussion, a definition of picaresque in a strict (or Spanish) sense.

BIOGRAPHY 35

ALAN SHELSTON. Biography explores some of the ways in which biographers have set about their challenging task in the post-Renaissance period and investigates some of the problems implicit in this literary form.

FRENCH COMIC DRAMA FROM THE 16th TO THE 18th CENTURY

GEOFFREY BRERETON. Tracing the course of French comedy from the Renaissance, through the age of Louis XIV and the eighteenth century to the eve of the Revolution, Geoffrey Brereton shows how French comedy evolved from the crude farces and the experimental plays of the sixteenth century to become a rich and highly sophisticated dramatic genre.

WESTERN POPULAR THEATRE

EDITED BY DAVID MAYER AND KENNETH RICHARDS. A lively collection of papers studying various forms of popular theatre in Western Europe and the USA, from the comedies of ancient Greece, through the traditions of the European Commedia dell'arte and American burlesque, to current forms of theatre in England, Sweden and Finland.

THE ENGLISH LANGUAGE

C. L. WRENNE. This book provides a historical picture of the English language, both literary and colloquial. It was first published in hardback in 1949, and since then it has become firmly established as a standard text for all students of English. There are chapters on inflexion, the shaping, building and ordering of words, and spelling in relation to pronunciation, but the main emphasis is on the development of the English vocabulary—the most outstanding feature of the language.



15477



BOOKS

Equations

Introduction to Partial Differential Equations by Gerald B. Folland... Princeton University Press, £5.95

Modern Numerical Methods for Ordinary Differential Equations edited by G. Hall and J. M. Watt... Oxford University Press, £9.75

Elementary Differential Equations with Linear Algebra by Ross L. Finney and Donald R. Osberg... Addison-Wesley, £10.50

Partial differential equations may be studied from very different points of view, from engineering applications to abstract existence theory.

After a preliminary outline of convolutions, Fourier transforms, distributions and compact operators, the theory is developed via local existence theory (Cauchy problem), the Laplace, heat and wave operators (all in complex n-dimensional space), and the Dirichlet and Neumann problems (using integral operators).

Altogether, this is a most stimulating blend of applied function theory and functional analysis. Physical concepts are emphasized, but no detailed knowledge of physics is assumed; an index would have been useful.

The book edited by Hall and Watt is based on lectures given at a summer school in 1975. It is in four parts, the first two dealing with initial value problems, and the other two with boundary value problems and functions of complex variables.

Many standard topics are treated separately for stiff and non-stiff problems. For instance, convergence, stability, Runge-Kutta, multi-step, and extrapolation methods, and comparisons of various methods. The so-called shooting and expansion methods are studied in part three, while delay and integrodifferential equations are treated in part four.

Finney and Osberg's book covers a broad spectrum in modern form (linear spaces and operators are used throughout, and contraction mappings appear in existence proofs). Topics include: systems of equations, eigenvalue problems, elementary stability theory and series solutions around singular points.

J. S. N. Elvey

Natural communities

Theoretical Ecology: Principles and Applications edited by R. M. May... Blackwell Scientific, £4.80

In ecology as in other scientific disciplines, certain aspects become fashionable at particular moments in its history. At the moment considerable emphasis is being placed on mathematical modelling and its ability to capture some of the essential dynamic features of plant and animal populations.

May has brought together a mass of ideas that have appeared recently in scientific journals, and has provided the scientific community with a review of current thinking about how some aspects of nature might function and how and why communities of organisms might be structured in the way they are.

The early chapters are devoted to single species populations and two species populations attributes in the form of predator-prey, host-parasitoid, plant-herbivore interactions, competition and niche theory.

Conceptual Foundations of Quantum Mechanics by Bernard d'Espagnat... W. A. Benjamin, £26.50 and \$16.50

Quantum mechanics in its modern form appeared just over fifty years ago, after a long period of groping and false starts. It has served us well, but it is not yet a unified and unambiguous and, in every way where we can be sure that it has been correctly applied, it has been in superb agreement with experiment.

However, puzzling features soon appeared, mainly through the unavoidably statistical nature of quantum mechanics: only in very special circumstances does the theory predict what will happen on any particular occasion. The theory is usually much more modest, being concerned merely with the statistical outcome of a fixed experimental procedure repeated many times.

Fundamentals of Rock Mechanics by J. C. Jaeger and N. G. W. Cook... Chapman & Hall, £7.50

The origins of rock mechanics as a scientific discipline in its own right lie within different subject areas. Historically, miners experienced by trial and error the practical difficulties of breathing and controlling the behaviour of rock around underground openings.

During the 1930s greater attention was devoted to the systematic study of the properties of intact rock materials by both mining engineers and rock physicists. It was rapidly appreciated that the behaviour of relatively small rock specimens has little relevance to the mass properties of rock in view of the weakening in situ influence of planes of weakness such as joints, bedding planes and faults.

This textbook has deservedly achieved a reputation as the standard work drawing material from diverse sources into an integrated and readable text. It is concerned with the strength and deformation properties of rock materials, much data being drawn from classical elasticity, plasticity and fracture

from such studies and these are amply illustrated in this important compendium.

In the middle chapters of the volume it is acknowledged that the step up from two to three dimensions introduces a confusing proliferation of parameters and a qualitative change in dynamical complexity. Emphasis is therefore laid on the structure rather than the functioning of interactions of multi-species communities; patterns in such communities, island biogeography and succession are all dealt with.

Whatever one's views about mathematical modelling and ecology this volume should be required reading for all ecologists. Then and only then would it be reasonable to agree or disagree with the teaching in this subject. The chapters all have similar formats, in that they start at a fairly simple level and rapidly progress to a quite sophisticated discussion of the subject matter.

Philosophy in physics

answer, but even declared that such questions ought not to be asked.

Moreover, one of the more surprising and enthralling new features was that—considered as a whole—a composite system is in a comparably more than the mere sum of its parts. One consequence was practical: if we apply simple methods which work well for, say, the hydrogen atom, to molecules of only moderate complexity, we shall be faced with numerical labour of astronomical proportions.

This is my only complaint. Professor d'Espagnat writes with a clarity very welcome in an area of such conceptual difficulty. This does not mean that the book is easy to read; the subject-matter seems to that. No final answers are given since no one has yet proposed any which carry universal conviction. One is left with an impression of a small company of able physicist-philosophers wrestling with some extremely difficult problems at the frontiers of our understanding.

The behaviour of rocks

time, it was recognized that laboratory tests, under high confining pressures and temperatures, have relevance to the deformation processes which occur in rocks at depth within the Earth's crust.

This catastrophic failure of the Malpasset Dam in 1959 and the flood wave caused by part of Mount St. Helens in 1980 sharpened the industry's attention to the mass behaviour of rock. The increase in scale of mining operations, particularly the growth of open pit mining, has equally focused the attention of the extraction industry in a more systematic approach to rock mechanics.

This textbook has deservedly achieved a reputation as the standard work drawing material from diverse sources into an integrated and readable text. It is concerned with the strength and deformation properties of rock materials, much data being drawn from classical elasticity, plasticity and fracture

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John Phillipson

Gauge fields

No elementary particle physicist can be unaware of the importance of gauge fields in quantum field theory which has developed over the past few years.

The papers were presented at a conference held at Northeastern University in September 1975; the problem with conference proceedings is whether the information is particularly useful in this respect. Most of the papers are in the form of general reviews and constitute very readable introductions to various specialist subjects.

John L. Martin

Plant Structure, Function and Adaptation edited by M. A. Hall... Macmillan, £7.95

In the past few years it has become increasingly difficult to find a textbook for undergraduate teaching in plant biology which is comprehensive, up-to-date and, inexpensively, Plant Structure, Function and Adaptation, edited by M. A. Hall, satisfies these criteria with varying degrees of success.

The majority of the book falls within the realm of plant physiology and it is in teaching this subject that the book would be most useful. The chapter on water relations, for example, is one of the clearest explanations of a difficult topic now available. It is most unusual that an attention is made of plant stem culture and the plant hormones as mentioned only briefly, since these topics are such a large part of plant research work.

Renée Millar

Anglo-Saxon life

The Archaeology of the Anglo-Saxons edited by D. M. Wilson... Methuen, £30.00

Some of the recent advances in Anglo-Saxon archaeology are treated in this book of essays which assemble, in an authoritative commentary, material already published in another form, such as articles and interim excavation reports.

John Kemp

Reviewers

Tom Kemp is reader in economic history at the University of Hull and author of The French Economy 1913-1939 and Economic Forces in French History.

John Phillipson, reader in animal ecology at the University of Oxford, is author of Ecology of Europe 1913-1939 and the University of Lancaster and is author of The Origins of the Modern European State 1450-1725.

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Winchester in the early Middle Ages: An Edition and Discussion of the Winton Domesday by Frank Barlow et al... Clarendon Press: Oxford University Press, £12.00

In the setting of early England no town is of greater interest than Winchester. The largest of the Alfredian burhs, the real centre of the tenth-century state, it was the principal royal city of the Old English state.

The present publication (which is the first volume of Winchester Studies, with several more promised), contains around an edition and examination of the Winton Domesday. The Winton Domesday, whose name is modern, comprises two twelfth-century surveys of the borough of Winchester. The first survey of c.1110 was undertaken for Henry I, and is an inquiry into the royal land of Winchester. The second survey (1148) is a survey of the whole city, made for the bishop of Winchester.

Vera I. Evison

John Taylor

John Taylor

John Taylor

John Taylor

John Taylor

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John Taylor

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BOOKS

Royal city

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The texts which have been meticulously edited by Professor Barlow and the series editors (Prof. Brown and others) provide a wealth of information on urban patterns. Although the terms of the inquiries were formulated in feudal language, the information which they contain is basic to our knowledge of the level of feudal lords, the traffic in rents and tithes, which was an important part of this urban world.

An outstanding part of the examination of Winton Domesday is Olaf von Feilitzsch's analysis of personal and byname evidence. Because the commissioners undertaking the surveys recorded such names the text is an onomasticon without parallel for the period.

In later chapters Martin Biddle and D. J. Keene use the material of the surveys together with archaeological and other evidence to examine the topography, structures of landownership, and social organization of Winchester during the eleventh and twelfth centuries.

The type of information that can be deduced from the traces of animals, birds and fish on a settlement site is engagingly presented by Juliet Clutton-Brock.

As to general points, some of the plans are over-reduced, some figures are awkwardly set out on the page, and the choice of subjects for plates is disproportionate to the text.

John Taylor

Living on an estate

Medieval Settlement: Continuity edited by P. H. Sawyer... Edward Arnold, £19.50

This collection of papers was first given at a conference on medieval settlement organized by Professor Sawyer in 1974. The purpose of publishing them is to improve communication between specialists.

The most substantial section of papers deal with the pre-Conquest settlement of England. A major advance has come with the past decade's work on manorial origins. We now have large estates, often comprising 20 or 30 distinct settlements—"federal" or "composite" manors—presented as the normal form of social organization in the sixth and seventh centuries.

The volume is a delight to use, and has footnotes at the bottom of the pages when required. Both editor and publishers should be congratulated on the high quality of design and layout. This is not a book to be read at a sitting; there are too many sites, too many voices clamouring for attention. The reader should remember that he is at a conference, wander out for a drink or cigarette, but not miss the papers, for there is much of importance here.

Edmund King

Science of time past

Dating in Archaeology: A Guide to Scientific Techniques by Stuart Fleming... Dent, £8.95

The problems that arise in the field and in the mind of the investigator faced with an unpalatable result are not discussed for the excellent reason that they are not central to the book, but there are perhaps two contributory factors: few "wrong" dates get published, and Fleming's view of archaeology is naturally enough dominated by artifacts and individual skeletal finds.

The great strength of Dating in Archaeology lies in its detailed treatment of the principles underlying the various chronometric techniques. There is no skimping on formulae, the arguments are backed up by clear line drawings and tables, and the virtues and weaknesses of the procedures are illustrated by carefully chosen case studies, some of which remind the reader that Fleming is also the author of the splendid Authenticity and Sculptures.

Regrettably, the book compares unfavourably in price with other reviews of dating techniques on the market, and I can only hope it will be issued in paperback so that it can be recommended to the many students of geology and geography (as well as archaeology) who stand to profit from reading it. A paperback might also enable Fleming to include a list of commercial laboratories which provide the different techniques; many chronometric converts lapse into "conventional" practices simply because they lack personal contacts with research laboratories.

Claudio Vita-Finzi

VOLCANO

AN ENQUIRY INTO

THE LIFE & DEATH OF MALCOLM LAWRY

A 99-minute film by National Film Board of Canada, 1976

Showing at Electric Cinema Club, Portobello Road (727 4992), from 17th-20th April.

And at Electric Cinema, 29 King Street, Covent Garden, W.C.2 (836 1436), from 21st-24th April.

For 16mm film hire enquiries please ring 387 3230 or write to 5 Park Village West, London, N.W.1.



# Classified Advertisements

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## Universities

### THE KINGDOM OF SAUDI ARABIA University of Riyadh

Applications are invited for appointments to positions of Lecturers, Assistant Professors and above starting October, 1977, in the following specializations:

Modern Novel and Earlier Periods = 1 Female Specialist.  
Linguistics = 1 Female.  
Drama = 2 Specialists: 1 Male and 1 Female—(preferably in Post-Renaissance Drama, excluding Modern Drama).  
Poetry—Modern and Earlier Periods = 2 Specialists: 1 Male and 1 Female.  
At all levels, candidates must have Doctorate or MA qualifications in their respective fields and have experience as regular teaching staff in accredited Universities.

#### SALARIES AND ALLOWANCES (Saudi Riyals per month)

Position	Salary*	Annual Increment	Housing Allowance
Professor (PhD)	6,000-6,500*	200	20,000**
Associate Professor (PhD)	4,800-5,800*	200	17,000**
Assistant Professor (PhD)	3,600-4,800*	200	16,000**
Language Lecturers (a) MA (In Language Teaching + Lab Experience) (b) MA (Female) in Linguistics	3,000-5,250*	150	13,500**

Benefits: Tax free, free medical service, annual passage-paid (60 days) leave.

Applications should be sent with curriculum vitae and testimonials to:  
The Dean of the Faculty of Arts,  
PO Box 2456,  
University of Riyadh,  
Riyadh, Saudi Arabia.

\*plus 12% thereof as cost of living allowance  
\*\*plus 60% of the Housing Allowance as Furniture Allowance paid only once and after taking up employment in Riyadh, or possibly, University housing + 60% of the Housing Allowance as Furniture Allowance paid only once and after taking up employment in Riyadh.

## Saudi Arabia

### Ulster: The New University THE NEW UNIVERSITY OF ULSTER AND DEPARTMENT OF EDUCATION FOR NORTHERN IRELAND POST-GRADUATE STUDENTSHIPS (QUOTA AWARDS)

For the academic year 1977/78 the Department has allocated a number of quota studentships for postgraduate research leading to the degree of M.Phil., D.Phil. and for advanced courses leading to the degree of M.Sc., M.A. and also the Diploma in Continuing Education. Applications are invited for degree programmes in subject areas under:  
The School of Physical Sciences  
The School of Biological and Environmental Studies  
The School of Social Sciences  
The School of Humanities  
The Education Centre  
The Institute of Continuing Education at Magee University College, Londonderry.  
To be eligible for an award an applicant must normally be a British subject ordinarily resident in Northern Ireland and should hold a good honours degree. Applications may be submitted in anticipation of the results of final examinations for honours degrees. Application forms and further particulars should be obtained from The Registrar, The New University of Ulster, Coleraine, Co. Londonderry, Northern Ireland (quoting Ref: 77/50), to whom completed applications should be returned not later than 13th May, 1977.

### THE UNIVERSITY OF LANCASTER RESEARCH OFFICER

Applications are invited for the post of RESEARCH OFFICER in the Centre for Educational Research and Development. The Research Officer will work on a British Library project on "Teacher Information Needs". The appointment will be for one year from the Establishment Officer, from September 1, 1977, at a salary of £2,804. Applicants should be able to communicate effectively in writing and have a degree in education and/or psychology or social science. Experience in schools would be an advantage.  
Further particulars may be obtained (quoting reference L78/A) from the Establishment Officer, University House, Lancaster LA1 4YW, to whom applications (leave copies) naming three referees should be sent to arrive not later than May 4, 1977.

### BRUNEL UNIVERSITY UXBRIDGE, MIDDLESEX PROFESSOR OF ECONOMICS

The University has established a second Chair of Economics. Applications are invited from economists in any branch of the discipline. Salary within the professional range, minimum £8,106 per annum, plus £460 per annum London Allowance. Further information is available from Assistant Secretary (Establishment), Brunel University, Uxbridge, Middlesex, or telephone Uxbridge 37188, extension 46. The closing date for applications is 30 April, 1977.



Applications are invited for the following posts, for which applications close on the dates shown. SALARIES (unless otherwise stated) are as follows: Postdoctoral Fellow \$12,885-\$18,285; Senior Lecturer \$18,785-\$22,910; Lecturer \$13,880-\$18,388. Further details, conditions of appointment for each post, method of application and application form, where applicable, may be obtained from the Association of Commonwealth Universities (Apsu), 28 Gordon Square, London WC1H 9PP.

James Cook University of North Queensland  
**LECTURER IN MODERN LANGUAGES**  
Applicants should have at least a good honours degree and preferably a doctoral qualification in French or some Australian or Commonwealth university, with special research interest in the post-renaissance period. In view of the multi-cultural orientation of the Department it would be an advantage for applicants to have subsidiary competence in Italian Studies.  
6 May, 1977

University of Sydney  
**LECTURER/SENIOR LECTURER IN COMPUTER SCIENCE**  
Applicants should have higher degree or equivalent qualification in Computer Science, experience in numerical computation or some related field being particularly desirable.  
The Department has on-line access to the University's Cyber 72 computer and is equipped with several minicomputers of its own. It offers courses in Computer Science from the first-year level through to the honours level, followed by an M.Sc. and Ph.D. programmes. Applicants will be expected to assist with teaching and carry out research of their own choosing.  
4 June, 1977.

University of Tasmania  
Faculty of Education  
**LECTURER OR SENIOR LECTURER IN MATHEMATICS EDUCATION**  
The appointee will be responsible for the work, in curriculum and methods of teaching, of those students who are planning to teach Mathematics in secondary or primary schools. The successful applicant will be expected to conduct research in topics relevant to this field and should have good qualifications in Mathematics and Education and successful experience in teaching, preferably at more than one level.  
13 May, 1977.

La Trobe University Melbourne  
**LECTURER IN ITALIAN**  
Candidates should be experienced in teaching both language and literature but may be considered in proceeding beyond the traditional literary syllabus. Minimum qualification: B.A. (Hons) in Italian or its equivalent; candidates with a higher degree and research interests may be given preference.  
25 April 1977.

Candidates must be competent to teach in Italian and must be willing to take part in the division's language teaching programme.  
2 May, 1977.  
Australian National University  
Research School of Physical Sciences  
**POSTDOCTORAL FELLOW—ELECTRON AND ION DIFFUSION UNIT**  
The Electron and Ion Diffusion Unit has an academic staff of three and a technical staff of three. The Unit is headed by Dr. R. W. Crompton and is concerned with low energy electron and ion collision phenomena in gases. The successful applicant is expected to take part of the projects in progress in the Unit. These include the measurement and analysis of electron transport coefficients in oxygen, laser fu structures and metal vapours. The ion studies include investigation of ion-molecule reactions and interaction potentials using diode tubes.  
10 May, 1977.

Murdoch University  
Perth, Western Australia  
Murdoch University, Western Australia's second university, introduced its first students in February, 1975. The University is committed to taking a fresh approach to higher education, with the goal of responding directly to the conditions and needs of the late twentieth century. This is reflected in admission policies, organizational structures, programmes of study, philosophies of teaching and recruitment of staff.  
The University is organized as a system of schools of study, with the Dean of each school having both academic and administrative responsibility.

**LECTURER IN BIOLOGY (PLANT BIOLOGY)**  
School of Environmental & Life Sciences  
(Dean J. F. Longman)  
The successful applicant will be required to participate in biology teaching at first-year level, and to teach in inter-connection with plant sciences and in genetics. Applicants should possess a higher degree in botany, with expertise in genetics, and will be expected to actively engage in research and supervise postgraduate students.  
12 May, 1977.

University of Adelaide  
**LECTURER IN LIBRARY STUDIES**  
(Ref. 72)  
The Lecturer, who should have good academic and professional qualifications and appropriate experience in teaching, research and professional practice, will assist in the course for the Postgraduate Diploma in Library Studies. This course, introduced in 1975, focuses on academic library administration and the relations of information systems, and encourages bibliographic specialization. It is hoped that the Lecturer will take up duty by late August, 1977.  
14 May, 1977.

**LECTURER IN POLITICS**  
(Ref. 73)  
The Lecturer should be qualified in the fields of International Relations, the Politics of Advanced Industrial Societies, or Contemporary Social Theory. Applications from those specializing in other fields may also be considered.  
25 April 1977.

## KINGDOM OF SAUDI ARABIA UNIVERSITY OF RIYAD FACULTY OF ARTS

Applications are invited for appointments to positions of Professors, Associate Professors, Assistant Professors and Lecturers starting Academic Year 1397/98 (1977/78). Applicants must be native speakers of Arabic (except for the Department of English):—

Position	Qualifications	Department	Specialisation
<b>PROFESSORS</b>	Either, holding Ph.D. plus 5 years of subsequent university teaching experience as Associate Professor plus publications acceptable to Riyadh University, OR, holding Ph.D. plus Full Professor title already conferred by a recognised and accredited University.	Arabic Geography Geography History Mass-Communication Mass-Communication Sociological Studies	Grammar and Syntax Bio-Geography and Soils* (1) Economic Geography* (1) Regional Geography* (1) European History (1) Journalism (History of Journalism) (1) Broadcasting (Radio) and T.V. (1) Sociology (1)
<b>ASSOCIATE PROFESSORS</b>	EITHER, holding Ph.D. plus 5 years of subsequent university teaching experience plus publications acceptable to Riyadh University, OR, holding Ph.D. plus Associate Professor title already conferred by a recognised and accredited University.	Arabic Arabic Arabic Arabic History History History History History History Mass-Communication Sociological Studies	Grammar and Syntax (1) Ancient Arabic Literature (1) Rhetoric and Criticism (1) Literature and Criticism (1) Philology and Phonetics (1) Islamic Archaeology (1) Ancient History and Archaeology (1) Archaeology (1) Ancient Civilizations (1) Islamic Arts (1) Medieval Islamic History (1) Islamic History (1) Modern Arabic History (1) Advertising (Art)* (1) Sociology (1)—Female Social Work (1)—Female
<b>ASSISTANT PROFESSORS</b>	Ph.D.	Arabic Arabic Geography History History History History Mass-Communication Mass-Communication Mass-Communication Sociological Studies English Language and Literature English Language and Literature English Language and Literature English Language and Literature	Ancient Arabic Literature (1)—Female Grammar and Syntax (1)—Female Physical Geography (1)—Female Medieval Islamic History (1)—Female Islamic History (1)—Female European History (1)—Female Modern Arabic History (1)—Female Journalism (Journalistic Writing) (1) Mass-Media (International and Theories) (1) Public Relations (1) Broadcasting and T.V. (1) Social Work (1) Social Work (1)—Female Modern Novel and Earlier Periods** (1)—Female Modern Poetry and Earlier Periods** (1) Modern Poetry and Earlier Periods** (1)—Female Drama—(preferably) in Post-Renaissance Drama, excluding Modern Drama** (1) Drama—(preferably) in Post-Renaissance Drama, including Modern Drama** (1)—Female
<b>LECTURERS</b>	M.A.	Arabic Geography Geography English Language and Literature	Grammar and Syntax (1)—Female Physical Geography (1)—Female Human Geography (1)—Female Linguistics (1)—Female
<b>TEACHING-ASSISTANTS</b>	B.A. (at least Grade Very Good)	Geography	Geography (1)—Female Cartography (1)—Female

(1) Applications should be sent (Registered) with curriculum vitae, testimonials and academic qualifications (unreturnable) and certified by the Foreign Ministry and the Saudi Embassy and marked "Employment Application" to  
The Dean of the Faculty of Arts,  
P.O. Box 2456, University of Riyadh,  
Riyadh, Saudi Arabia  
(2) Only applications received within one month from the date of publication of this notice will be considered.  
(3) Candidates chosen will only be notified at their enclosed address.

## Saudi Arabia

\*Assistant Professors (Ph.D.) will be considered  
\*\*M.A. in same specialisation will be considered



Universities continued

OVERSEAS TEACHING POSTS

CONSULTANT IN ELT MATERIALS PRODUCTION (INDIA)

Central Institute of English and Foreign Languages, Hyderabad.

To assist in the production of English Language Teaching radio (with some TV) materials in the Radio/TV/Cinematography unit.

Candidates should be over 30, with relevant educational broadcasting experience to enable them to contribute to post graduate research and development.

Salary: £5,210-£7,054 (dependent upon qualifications and experience) plus 10% inducement allowance.

Benefits: Free furnished accommodation; overseas and children's allowances and other benefits. 2 year contract renewable. 77 PU 31

LECTURER/PROGRAMME ORGANIZER IN ELT AND ESP (TUNISIA)

The English Department, Bourguiba Institute of Modern Languages, University of Tunis.

To direct a materials production team and lecture in ELT and ESP. UK degree, postgraduate qualification in TEFL or applied linguistics, several years ELT experience and fluent French essential.

Salary: £4,589-£5,818 + 10% inducement. 77 CO 29

TEACHER OF ENGLISH AND ADMINISTRATIVE OFFICER (SENEGAL)

The British Institute, Dakar.

To teach English, including English by radio, to adult students, and assist with examinations and general administration.

Salary: £4,589-£5,818 + 10% inducement. 77 CO 29

LECTURER IN AGRONOMY

In this appointment, which is within the Department of Agriculture and Horticulture, preference will be given to candidates with an interest in crop physiology. Ref 507

LECTURESHIP IN FRENCH

Applications are invited from persons able to take classes in French prose, translation, essays, and analysis of texts and to do specialist teaching in 19th century French literature. An interest in modern methods of language teaching and in French institutions since the Revolution will be an advantage. Ref 508

LECTURESHIP IN HORTICULTURE

Applications are invited from persons able to take classes in French prose, translation, essays, and analysis of texts and to do specialist teaching in 19th century French literature. An interest in modern methods of language teaching and in French institutions since the Revolution will be an advantage. Ref 508

LECTURESHIP IN INDUSTRIAL ECONOMICS

Preference will be given to candidates with a special interest in Management Studies. Ref 510

LECTURESHIP IN THEORETICAL MECHANICS

The duties of this post will include the teaching of Mathematics to Engineering students and to Honours Degree level to students in Mathematics-with-Engineering. Ref 511

LECTURESHIP IN ZOOLOGY

Applicants should have research experience in one or more of the following areas: Developmental Neurobiology, Neurosciences, Synaptic Physiology and Pharmacology and Neurochemistry. Ref 512

THE BRITISH COUNCIL

OVERSEAS TEACHING POSTS

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Applications are invited from persons able to take classes in French prose, translation, essays, and analysis of texts and to do specialist teaching in 19th century French literature. An interest in modern methods of language teaching and in French institutions since the Revolution will be an advantage. Ref 508

LECTURESHIP IN HORTICULTURE

Applications are invited from persons able to take classes in French prose, translation, essays, and analysis of texts and to do specialist teaching in 19th century French literature. An interest in modern methods of language teaching and in French institutions since the Revolution will be an advantage. Ref 508

LECTURESHIP IN INDUSTRIAL ECONOMICS

Preference will be given to candidates with a special interest in Management Studies. Ref 510

LECTURESHIP IN THEORETICAL MECHANICS

The duties of this post will include the teaching of Mathematics to Engineering students and to Honours Degree level to students in Mathematics-with-Engineering. Ref 511

LECTURESHIP IN ZOOLOGY

Applicants should have research experience in one or more of the following areas: Developmental Neurobiology, Neurosciences, Synaptic Physiology and Pharmacology and Neurochemistry. Ref 512



THE UNIVERSITY OF NOTTINGHAM

Applications are invited for the following appointments:-

LECTURER IN AGRONOMY

In this appointment, which is within the Department of Agriculture and Horticulture, preference will be given to candidates with an interest in crop physiology. Ref 507

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UNIVERSITY OF HONG KONG

LECTURESHIP/ ASSISTANT LECTURESHIP IN ARCHITECTURE

Applications are invited for the following appointments:-

LECTURER IN AGRONOMY

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UNIVERSITIES CONTINUED

UNIVERSITY OF NATAL PIETERMARITZBURG

DEPARTMENT OF MICROBIOLOGY AND PLANT PATHOLOGY

Applications are invited from suitably qualified persons for appointment to the post of

PROFESSOR and HEAD of THE DEPARTMENT of MICROBIOLOGY and PLANT PATHOLOGY

Candidates should hold a doctoral degree and should have experience in teaching and research and an ability to initiate research and supervise postgraduate students.

The annual salary scale attached to the post is R11,250 by R450 to R12,800 by R600 to R13,800 plus 10 per cent pensionable allowance on standard salary per annum.

The commencing salary notch on this scale will depend on qualifications and experience. In addition, an annual vacation savings bonus is payable, subject to Treasury regulations.

Application forms, further particulars of the post and information on pension, medical aid, staff bursary, housing loan and subsidy schemes, long leave conditions and travelling expenses on first appointment are obtainable from the Registrar, University of Natal, P.O. Box 375, Pietermaritzburg 3200, with whom applications must be lodged not later than 30th May, 1977, quoting reference PMS 17/77.

UNIVERSITY OF DUNDEE

PRINCIPAL and VICE-CHANCELLOR

The University is proceeding to the appointment of a successor to Principal James Drever who has indicated his intention of retiring in September, 1978.

The Committee set up by the University Court to nominate his successor would be pleased to hear of any persons who might be considered for this appointment, whether by personal application or by nomination from others.

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UNIVERSITY OF NAIROBI-KENYA

DEPARTMENT OF BOTANY

Applications are invited for the following posts:-

LECTURER IN BOTANY

Applicants should hold a PhD in Botany or a related discipline and have a minimum of 5 years' postgraduate research experience in the field of Botany.

The annual salary scale for this post is KSh 8,000 to KSh 12,000 plus 10% pensionable allowance on standard salary per annum.

Application forms, further particulars of the post and information on pension, medical aid, staff bursary, housing loan and subsidy schemes, long leave conditions and travelling expenses on first appointment are obtainable from the Registrar, University of Nairobi, P.O. Box 29, Nairobi, Kenya.

UNIVERSITY OF OTAGO

LECTURER OR SENIOR LECTURER IN ACCOUNTING

Applications are invited for a vacant position in the Department of Accounting and Finance within the University of Otago.

The annual salary scale for this post is \$11,000 to \$15,000 plus 10% pensionable allowance on standard salary per annum.

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UNIVERSITY OF WELLS

LECTURERS APPLIED BIOLOGY (2) PHYSIOLOGY-BIOCHEMISTRY FRESHWATER ALOLOGY

Applicants should hold a PhD in Applied Biology or a related discipline and have a minimum of 5 years' postgraduate research experience in the field of Applied Biology.

The annual salary scale for this post is £3,333 to £6,665 plus 10% pensionable allowance on standard salary per annum.

Application forms, further particulars of the post and information on pension, medical aid, staff bursary, housing loan and subsidy schemes, long leave conditions and travelling expenses on first appointment are obtainable from the Registrar, University of Wells, P.O. Box 20, Wells, Somerset BA8 3NJ, England.

KENYATTA UNIVERSITY COLLEGE-KENYA

CHAIR OF ECONOMICS

Applications are invited for the post of SENIOR LECTURER/LECTURER in the PHYSICAL EDUCATION DEPARTMENT.

UNIVERSITY OF MALTA

CHAIR OF ECONOMICS

Applications are invited for the post of SENIOR LECTURER/LECTURER in the PHYSICAL EDUCATION DEPARTMENT.

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CARDIFF UNIVERSITY COLLEGE

CHAIR OF ECONOMICS

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UNIVERSITY OF MALTA

CHAIR OF ECONOMICS

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Official Appointments continued



Applications are invited for the following posts:

- Lecturer I/II in Law
To teach general legal subjects...
Lecturer II in Accounting
To teach in at least one of the following areas...
Lecturer I/II in Secretarial Studies
To teach graduate and post A-level students...

- Lecturer I/II in Psychology (2 Posts)
To teach one or more of the following on CNAA degrees...
Lecturer I/II in EFL (2 Posts)
To teach English as a Foreign Language...
Lecturer I/II in Professional Cookery
To teach HND/OND plus City & Guilds 708 1, 2, 3

The following posts are temporary appointments for one year from 1 September 1977 to 31 August 1978:

- Research Assistant in Educational Studies
To work on a project analysing teaching and classroom interaction...
Research Assistant in Geography
To research on a project in industrial change in the London Borough of Ealing...

Research Assistant in Law: Socio-Legal Studies
For research in the investigation of administrative procedures with reference to the role of law in the immigration appeal process.

EALING TECHNICAL COLLEGE BECOMES PART OF THE NEW EALING COLLEGE OF HIGHER EDUCATION ON 1 SEPTEMBER 1977

Further details of each of the above posts are available from The Clerk to the Governing Body (TDVG) Ealing Technical College, 51 Mary's Road, Ealing London W5 5RF. Closing date 3 May 1977

Inspector/Adviser in Primary Education

Applications are invited for the post of Inspector/Adviser in Primary Education with special reference to the Junior age range. Starting date: 1st September, 1977. Salary: Burnham Head Group VIII



General Vacancies

Adviser/Writers

Longman Group are looking for two ELT specialists to join their Resource and Development Unit. As part of the Longman English Teaching Services the unit is responsible for advising on and preparing materials for the teaching of English as a foreign/second language, and also assists in providing teacher orientation relevant to the materials produced.

Experience of TEFL/ESL is essential. For one of these posts this experience will have been gained in one or more countries of the Arab World, preferably at the secondary school/intermediate language level. For the other, African experience at the primary/beginners level is mainly called for.

Experience in the preparation of language teaching materials and/or curriculum development is also essential. A post-graduate qualification in the fields of applied linguistics or education would be a considerable advantage.

The posts are based in Harlow, Essex, but are likely to involve foreign travel connected with the development of material for particular areas, up to a maximum of about three months a year.

For further details and an application form please telephone or write to:

Mrs S Etherington, Personnel Officer, Longman Group Limited, Longman House, Burnt Mill, Harlow, Tel Harlow (0278) 28721



LECTURERS IN ACCOUNTING SUBJECTS

THE LONDON SCHOOL OF ACCOUNTANCY is the largest tutorial organisation in the private sector providing courses for Chartered and Certified Students.

Vacancies exist in our London, Manchester and Margate centres for

PART TIME LECTURERS ON DAY AND EVENING COURSES

Preference is given to those with ACA, ACCA or ACMA qualifications. These posts are likely to attract those already engaged in the teaching profession.

The School also has a centre in Birmingham. Further particulars may be obtained from the appropriate address

LONDON SCHOOL OF ACCOUNTANCY, 23/24 Old Bailey, London EC4, Tel 01-248 8861

Courses

SURREY THE UNIVERSITY DEPARTMENT OF PHILOSOPHY M.A., M.Phil., and Ph.D. in PHILOSOPHY

The Department offers the above degrees. Each is offered on a part-time or full-time basis. The M.A. degree is taken with specialisation in one of: Philosophy of Education, Religious Studies, Philosophy of Science.

Colleges of Further Education

HERTFORDSHIRE COUNTY COUNCIL HERTFORDSHIRE COLLEGE OF ART AND DESIGN Hatfield Road, St Albans, Herts.

Applications from men and women for the post of Registrar and Clerk to the Governors are invited. The Registrar is the Chief Administrative Officer of the College and is responsible to the Principal for all non-teaching services: academic, administrative, financial, technical, maintenance and catering, and also as Secretary to the Academic Board.

LONDON INNER LONDON EDUCATION AUTHORITY LONDON COLLEGE OF PRINTING Etonham and Cavell London SW17 6BH

Applications are invited from suitably qualified persons to teach the history of photography in the postgraduate diploma in photography. The successful candidate will be invited to a highly and expanding history of Art Unit.

Colleges and Departments of Art

LONDON MERCHANT NAVY ART TUTOR ART TUTOR (part-time) for two years to teach in the Merchant Navy Art School. The school is situated in the Maritime School, 25, Burnt Mill Road, Harlow, Essex.

Administration

CITY OF LONDON THE POLYMER ADMINISTRATIVE ASSISTANT The Assistant Administrative Officer will be responsible for the day-to-day administration of the City of London Polytechnic. The post is a full-time position with a salary of £5,400 per annum.

SUSSEX THE UNIVERSITY THE ADMINISTRATION CHIEF CLERK/RECEPTIONIST

This is a full-time post within the University of Sussex. The post is a full-time position with a salary of £5,400 per annum. The successful candidate will be invited to a highly and expanding history of Art Unit.

THE PLASTIC RUBBER DESIGN EDUCATION OFFICER

The Plastic Rubber Design Education Officer will be responsible for the day-to-day administration of the Plastic Rubber Design Education Unit. The post is a full-time position with a salary of £5,400 per annum.

LONDON SECRETARY TO THE ADMINISTRATIVE OFFICER

The Secretary to the Administrative Officer will be responsible for the day-to-day administration of the Administrative Office. The post is a full-time position with a salary of £5,400 per annum.

Overseas



The Council of Torrens College of Advanced Education invites applications from outstanding art educators for appointment to the position of

PRINCIPAL OF THE SOUTH AUSTRALIAN SCHOOL OF ART

The South Australian School of Art was incorporated as part of Torrens College of Advanced Education by Act of Parliament in 1972. Torrens College is a multi-disciplinary College being established at Underdale, five kilometres from the Centre of Adelaide.

The College consists of five Schools, including the South Australian School of Art, responsible to the Director and to the Council. The Principal of the South Australian School of Art is an ex officio member of the Council.

- 1 A Bachelor of Arts course in Fine Art with strands of Painting, Sculpture and Printmaking.
2 Diploma courses in Design in areas of Ceramics, Graphics, Product and Furniture. A possible Bachelor of Arts degree in Design to incorporate these is under consideration.
3 Associate Diploma courses in Commercial Art, Photography, Crafts, Ceramics, Product Design, and Jewellery and Silversmithing.

Other courses in Design may be introduced in the future. The South Australian School of Art has the responsibility of the practical Art training of students wishing to become Specialist Secondary Art Teachers as part of a Diploma of Teaching (Secondary) and a Bachelor of Education.

The South Australian School of Art enjoys the prestige of being one of the leading Australian Art Schools and in 1976 fifty-three academic and general staff were directly involved in teaching in the School. The School has three major Departments: Fine Art, Design and Secondary Art Teaching.

Further details regarding the position may be obtained from the Director.

Salary is at present under review. The minimum to be offered is \$A27,612.

Applications, with names and addresses of appropriate referees, should be received by:

The Director, Torrens College of Advanced Education, Holbrooke Road, Uniwerdale, South Australia 5032, Australia

by 31 May 1977

OVERSEAS DEVELOPMENT

KNOW-HOW vital to developing countries

Education Overseas-Burma Adviser in Education Planning

To advise Director General, Department of Higher Education in identification of priority projects in education field; rationalisation in structuring and restructuring of education systems; strengthening inter-relationship between educational planning and manpower planning. Applicants, aged about 45, should have theoretical and practical experience in field of Education Planning and Statistics, with knowledge of Technical and Vocational Education. Appointment 3 years.

Salary according to qualifications and experience plus variable tax free overseas allowance in range £885 to £2,300 p.a. Superannuation rights may be safeguarded. The post is wholly financed by the British Government under Britain's programme of aid to the developing countries. In addition to basic salary and overseas allowances other benefits normally include paid leave, free family passage, children's education allowances and holiday visits, free accommodation and medical attention. Applicants should be citizens of the United Kingdom. For full details and application form please apply, quoting ref. 317, giving details of age, qualifications and experience to:-

Appointments Officer, MINISTRY OF OVERSEAS DEVELOPMENT, Room 301, Eland House, Stag Place, London SW1E 5DH. HELPING NATIONS HELP THEMSELVES

DEAN of STUDIES

United Nations International School

The position, Dean of Studies, has been created at UNIS for appointment September 1, 1977. Applications will be received through May 6, 1977, with announcement of appointment to be made by mid-June.

The primary objective of the Dean of Studies is the perfection of a concept of international education appropriate for UNIS...

- ... to provide coordination and leadership in curriculum and methodology
... to ensure equitable and rational standards of methodology, continuity of curricula, and consistency in subject requirements and regulations
... to direct the operation of the International Education Center
... to ensure that faculty appointment and renewal procedures are properly followed, and are in the best interests of the school
... for the operation of the school's in-service training role and for its development as a centre of expertise in international education.

The Job Description Committee Applications and inquiries should be mailed to: Elizabeth Kahn, Secretary, Academic Dean Search Committee, United Nations International School, 24-50 East River Drive, New York, NY 10010.

Administration continued

ASSISTANT SECRETARY (FURTHER EDUCATION)

required with effect from September 1, 1977, by the National Association of Teachers in Further and Higher Education, Hamilton House, Mabledon Place, London WC1H 9EJ. Salary on Burnham Scale HOD Grade III/IV, £6,231 per annum to £7,832 per annum (plus supplements of £312 and £180, and London Allowance of £402). Further details and application form (returnable by May 10) from General Secretary (telephone 01-387 6808, extension 8).

DESTINATION - EUROPE THOMSON COACH HOLIDAYS

This year Thomson Holidays offer an exciting range of sea/coach holidays departing from Victoria coach station weekly from the beginning of May through till September. All brochure prices are guaranteed final.

Visit Brussels, Amsterdam, Bonn, Luxembourg and Paris on the 8 day Five European Capitals Tour. Guaranteed prices start at £85 pp.

Or spend 12 days visiting Belgium, Luxembourg, Germany, Austria, Liechtenstein, Switzerland, Italy and France, ending up in Paris on the Paris and Eight Countries Tour. Guaranteed prices from £119pp. Travel to Vienna in the heart of Europe on the Grand European Tour. This tour lasts a fascinating 17 days and takes you to such beautiful cities as Salzburg, Venice, Rome, Florence and Paris. Guaranteed prices start at £189 pp.

For full details of these and all Thomson Coach Holidays see your travel agent or for brochure or ring your local Thomson office.

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